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Textile World

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"Bring In a New Dollar"

WHILE we sympathize with wool manufacturers who fear that "National Cotton Week" will make inroads into the market for their products, we cannot absolve them from blame.

The wool industry has had similar opportunity to show its wares. It did, in fact make a start in this direction through its "Golden Fleece Pageants." Many consumers learned for the first time, through those displays, of the new sheer fabrics made of wool which were available.

However, as the spirit of cooperation within the wool industry began to suffer from infantile paralysis, and as the old individualism reappeared, the promotion of wool fabrics suffered.

Cotton manufacturers are trying to do just what wool manufacturers attempted: to demonstrate to the public the versatility and attractiveness of their products. The only difference is that the cotton division has not allowed its cooperative effort to become debilitated.

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A few months ago, in commenting on the various textile promotional campaigns, we acknowledged that many observers were alarmed at the competitive element in these programs on the basis that they represented merely a free-for-all fight among the various divisions of the industry for the same dollar. However, we said: "We have learned not to be too dogmatic on the subject of advertising. Consequently we admit our inability to state flatly that the success of the silk campaign, for example, might not divert from the rayon industry a few pennies of the dollar which had been heading in that direction. We do know, however, that those campaigns, if properly formulated and prosecuted, can bring a new dollar into the textile industry as a whole. The division of that new dollar will depend upon the relative aggressiveness of the various branches."

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Textile World has as much at stake in the success of the wool industry as in the progress of the cotton industry. Consequently, if for no other reason than self-interest, it hopes that wool manufacturers will do their part to bring a new dollar into the textile industry—and, of course, to get their share of it. In fact, we can readily imagine that the announcement of National Cotton Week may have a beneficial effect upon the wool division. It may reawaken its instinct toward cooperative activity, which even its most ardent adherents have admitted to be dormant.

The textile industry needs "a new dollar." The cotton division is making a play for it. All other branches have an equal opportunity.

The Week in Textiles

as Reflected in This Issue

General

Wage Incentives
The establishment of a wage incentive is the last stage of a series of management operations, and it is essential that all of the preliminary steps be taken carefully. *(page 32)*

Shop Equipment Needed
Textile mills often fail to appreciate the savings resulting from a well equipped and efficiently operated machine shop. Master mechanics in session at Greenville, S. C., May 8, engaged in discussions of modern shop equipment and the manufacture of supply parts in the mill shop. *(page 34)*

Narrow Fabrics
Mr. Gibbons explains the use of extra warps in narrow fabrics for figure, strength, and stitching. *(page 38)*

Loom Pick Shaft
An improved pick shaft for looms is constructed of a new mixture of iron and alloys and is equipped with a steel pick-ball cover. *(page 44)*

Index Numbers
TEXTILE WORLD index numbers on cotton and wool for April show decline from March in five out of eight classes. Raw cotton and yarns in the last week of April touched record lows for 10 years. Wool indexes are also low but seemed more stable through March and April. *(page 71)*

Cotton

Bedford Cords
A rounded and permanent cord is desirable in Bedford-cord fabrics. How this may be obtained is explained in a thorough-going article by an authority on many types of cotton designing and weaving. *(page 26)*

Promotes "National Cotton Week"
"National Cotton Week" has been set for the first week in June and support has been promised by wholesale and retail distributors. It is an outgrowth of the "Wear Cotton" movement which has been sweeping the South. *(page 29)*

Warp Sizing
The chain-form of warp is not suitable for sheeting. A warp for this fabric should be sized on the slasher, where it will take up 9% size, and should be dried to leave 6% moisture. *(page 41)*

Disinterest in Cotton Yarns
There is insufficient business in cotton yarns to make it possible to say just where the price level is. Quotations are holding nominally at same level as last week. *(page 53)*

Slightly Better Appearance
There have been spurts in demand and strength in prices of print cloths followed by further weakness, but some progress has been made within the last week, giving the market a slightly better appearance than previously. *(page 59)*

Wool

Bradford College
Emphasis is placed on worsted manufacture in the comprehensive instruction offered by the famous Technical College at Bradford. *(page 36)*

Carbonized Yarn Yellow
A yellowish cast in woolen yarn is laid to failure to remove all of the alkali in the processes subsequent to carbonizing. *(page 43)*

Sees Stability in Wool
Stability in wool values appears likely to Dr. Lewis H. Haney, writing in the TEXTILE WORLD Analyst this week. Domestic markets are now reflecting the strength shown abroad earlier in the year, but renewed declines abroad postpone hopes for sustained advance here. Dr. Haney expects worsted yarn prices to stabilize, but warns that if they do not cloth prices may sag. *(page 49)*

Wool Is Quiet
Wool markets are quiet. Such interest as there is centers on fine and three-eighths blood grades. Dealers are interested in new clip wools but play for quick turns. *(page 55)*

Gains Made in Wool Goods
Activity in men's wear fabrics for fall is apparent and summer goods in women's wear are selling. Sampling has been extensive in women's fall coatings and volume is expected in near future. Summer dullness may not affect these manufacturers this year. *(page 59)*

Knitting

Hosiery Changes in Shade
Causes of varying shade in a stocking are found to be mixed silk and differences in stitch. *(page 42)*

Uneven Courses in Stocking
Excessive aging of the silk in a wet state is suggested as the basic cause for uneven courses in a full-fashioned stocking. *(page 43)*

Outerwear Looks Further Ahead
Outerwear buyers until just recently have been refusing to order for fall.

The Textile Outlook

WHETHER the immediate textile market is good or bad, this country's 125,000,000 population is daily wearing out its quota of fabrics and eventual replacement is inevitable. Buying withheld becomes forced buying after a critical point has been passed. Witness the dullness of the last quarter of 1930 in the cotton goods market and the activity of the first quarter of the current year. At the moment wool goods are showing the best spirit of any textile subdivision, but the sentiment is growing in cottons that after a dull April and May an active June may result. Textile stocks are low with most distributors and they cannot play a waiting game too long. . . Small price cuts have stirred interest in cottons and hope grows that stronger support is on the threshold. Wool goods still move in good volume with many mills well sold ahead. Silk goods are shaken by raw silk's new lows but plan for better merchandising this fall than was evident this spring. Hosiery and underwear are recovering slowly after price cuts, while outerwear is brisk with last minute business.

Present rush on bathing-suits and spring sweaters is giving them an idea some advance fall commitments may not be a mistake. *(page 60)*

Quality or Price?

There is a clearer line of demarcation in full-fashioned goods. Low prices with quality come-what-may, or goods which will give satisfactory wear? Mills will soon have to choose which path to take. Seamless hosiery more active. *(page 60)*

Fall Underwear Buying Late

There is fair interest in spring underwear in the low price field, but demand for fall weights is absent. Sellers blame late arrival of warm temperatures for present conditions, but feel a rush is possible later in season. *(page 60)*

Data on Hosiery Stocks

A survey of the stock situation as affecting full-fashioned hosiery has been completed and issued by the Industrial Research Department of the University of Pennsylvania. It discloses that stocks have dropped from the peak of 5,000,000 doz. prs. at the end of February, 1930, to 3,750,000 12 months later. *(page 64)*

Negligible Gain in Cotton Goods Stocks Despite Dull April

STATISTICAL reports of production, shipments and sales of standard cotton cloths during the four weeks of April, 1931, issued by The Association of Cotton Textile Merchants of New York, show a small gain in production rate, though sales fell off sharply. Stocks, however, gained only 3% through the period.

Production during April amounted to 225,955,000 yd., a rate of 56,489,000 yd. per week or 4% over the March rate. Shipments during April were 217,582,000 yd., equivalent to 96.3% of production. Sales, or new business, booked during the month amounted to 137,749,000 yd., or 61% of production. These sales on a weekly basis were 40% less than March sales.

Stocks on hand at the end of the month amounted to 282,154,000 yd., representing an increase of 3% during the month. Unfilled orders on April 30 were 294,118,000 yd., a decrease of 21.3% during the month.

As was to be expected, after three consecutive months of large sales, April was a quiet month from the standpoint of new business. A large part of the production was applied against the unfilled orders accumulated during the first quarter. Stocks on hand remain well below the average of past years. Total shipments and sales since the first of the year are both about 9% in excess of production, and unfilled orders are still larger than the stocks on hand.

Silk

Census Data on Silk Machinery

Census figures on silk spindles and looms broken down by classes and States have become available as a result of the 1929 Census of Manufactures and are published for the first time. Similarly figures on cards in the wool manufacturing industry are given. *(page 30)*

Twisting-In Warps

Removing hard-twist harness from the looms with drop wires in place in order that it may be handled in the twisting frame is not recommended. Twisting-in on the loom is preferable. *(page 41)*

Raw Silk Touches New Low Point

The silk futures market touched a new low early this week. Selling of syndicate-held Japanese silk was a major factor in this. Talk of $2 silk is again current. *(page 57)*

Spun Silk Has Better Tone

Interest shown by manufacturers of shirting materials has given spun silk a better tone and further impetus from same source is expected in near future. Thrown silk yarns feel depressing effects of raw silk decline. *(page 57)*

Lesson from Poor Season

There is a feeling that the poor spring season in broadsilks may teach the trade several lessons which will tend to improve conditions by the time fall selling begins in earnest. *(page 59)*

Survey Committee at Work

The survey committee of the Silk Association has met and formulated its program which was described in May 2 issue of TEXTILE WORLD. The aim is to give the individual manufacturer a complete market picture. *(page 64)*

Rayon

Italian and Japanese Output

Italian rayon production in February was 5,300,000 lb. against 6,000,000 in January. Japanese February production was 3,360,000 lb. against 3,370,000 lb.

Rayon Underwear

Vertical streaks in rayon underwear fabric are due to lack of uniform tension on the stitches. *(page 42)*

Rayon Demand Is Good

Selling of rayon continues in excess of production, although it should be remembered that most producers are operating on reduced schedules and there are stocks to be considered. *(page 57)*

Processing

Stains on Cotton Lace

The method of removing graphite stains from cotton lace is more important than the product used. *(page 42)*

Cleaning Dye Kettles

Soda ash and water are sufficient for removing acid dye from kettles in which rayon is to be treated. *(page 43)*

Bleaching Hosiery

Methods for bleaching rayon, acetate, and mercerized-cotton hosiery with sodium hypochlorite. *(page 43)*

Dyeing Mottled Flannel

Applying a fugitive dye in the slasher and passing the woven fabric through a water mangle are suggested for obtaining a mottled effect on flannel. *(page 43)*

New Group of Textile Chemists

Textile chemists of Georgia and Alabama met at Atlanta May 9, decided to organize and appointed a committee to work out details. *(page 65)*

The Business Outlook

AT THE close of the great national and international business conferences, business sentiment here and abroad seems to have assumed an ultramarine shade of pessimism. This is somewhat surprising, for while the outcome of the conferences was disappointing to those who looked for decisive leadership, the surface signs of the business situation have given no ground for added gloom, and a fundamentally favorable force has appeared in the picture in the form of persistent and powerful Federal Reserve pressure for credit expansion. Our index is holding its level with no indication of impending decline due to more than seasonal changes. The seasonal slackening of steel activity seems slightly slower, with moderately improving prospects of automotive demand. Building permit figures reflect some improvement in residential construction. Check payments and currency circulation suggest some increase in money turnover. Department store results for April indicate increased retail activity. Crop prospects are encouraging. Increasing stability in stocks and strength in bonds are reassuring.—*The Business Week.*

Successful Constructions for Bedford Cords

By John Reynolds

BEDFORD cord is a standard cotton fabric, and is supposed to have originated in Bedford, England. Bedford cords are used for a variety of purposes, such as all-over effects, single stripes, and groups of stripes on all standard cotton-cloth grounds. The term piqué is often applied to Bedford cord, but this name is not correct. The true piqué is a fabric in which the ribs or cords run from selvage to selvage, and not warpwise as in this cloth. The true piqué has a fast or plain-woven back, while the Bedford cord is woven loose on the back. It is possible to weave a Bedford cord with a fast back —that is, to weave the wadding or filler picks in plain order; but to do this the picks per inch must be practically doubled. If the picks per inch were not doubled, the wadding ends would have no effect on the rounding of the cord; they would lie flat in the back of the cloth.

One-Half of Picks on Face

The sley, or ends per inch, in the majority of cases is heavy, and the picks per inch should be correspondingly heavy in order to give the rounded appearance so much desired. It is well to keep in mind in considering picks per inch that only one-half of these picks appear on the face of the cloth. For every four picks of the repeat of the weave that are inserted in the cloth only two are woven into the face. The other two float on the back and interweave only with the depression ends, serving to keep the wadding ends in place. The wadding ends do not weave into the cloth at any part of the weave. They lie loosely on the back and are held up to the back by the two picks of the repeat that do not weave into the face.

The depression ends, or binders, interweave with every pick that is inserted in the cloth, and it is this interweaving with every pick that enables the binders to depress or bind the cord proper. It is obvious that if any part of the warp should interweave twice as much as the other part, the contraction of the ends that are interweaving the most will be practically as much as that of the ends that are not interweaving to the same extent. It is this extra contraction that binds or depresses the cloth at that part where the ends are interweaving in plain order.

The weave of the face of the cloth is three up and one down. The repeat of the pattern should always be on two cords. The face of the cloth is comprised of all the ends that show on the face, and these include the depression ends. The wadding ends do not weave into the face of the cloth and are not considered in any calculation other than that of figuring a layout to determine the number of ends or in figuring a cost.

Obtaining Permanent Roundness

Bedford cords can be woven without the use of wadding ends, and thousands of yards are woven in this manner; but the wadding ends hold out the rounded appearance of the cord. Without them the cord would lie flat; for, no matter how rounded the cord may appear when weaving, this effect is not permanent unless it is supported by a sufficient number of wadding ends. The greater the number of wadding ends, the more rounded and permanent the corded effect.

If the sley of the cloth is not sufficiently dense, and heavy wadding ends are used, the face ends will become displaced during the weaving by the movement of the wadding ends—that is, unless the picks per inch are woven in densely, thus holding the face ends more firmly. The reason for this is that, as stated above, only one-half of the picks per inch interweave with the face ends or the ends that are weaving three up and one down.

If the sley of the cloth is dense, it is not good practice to draw less than three, or more than five, face ends per dent of the reed. If less than three ends per dent are drawn, a fine-dent reed must be used; and this will cause undue friction of the warp yarn. If more than five ends per dent are drawn, the warp yarn will be tardy in separation, and this will cause bad warp and filling kinks.

There is one exception to this rule in the reeding of Bedford cords, and that is in the case in which six ends for face and one wadding end are used—two of the six ends being depression ends; and four, cord ends. It is

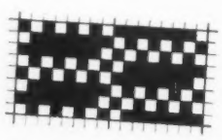


Fig. 1. Repeating on even number of ends

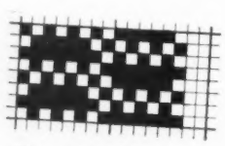
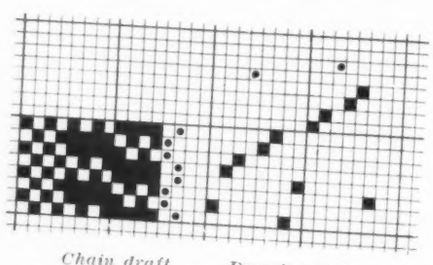


Fig. 2. Incorrect design for Bedford cord



Chain draft *Drawing draft*

Fig. 3. For Bedford cord with 26 wales per inch

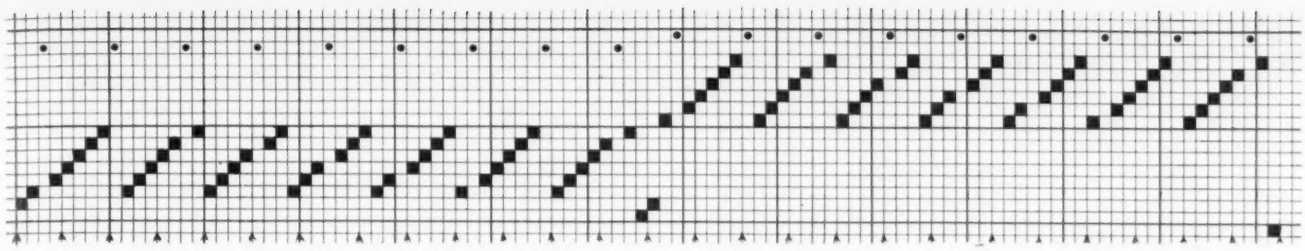


Fig. 5. For Bedford cord with three wales per inch

Drawing draft

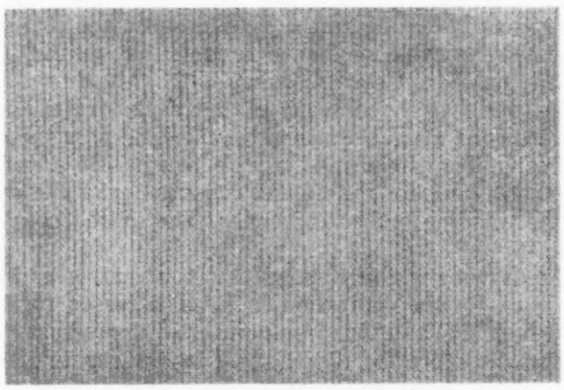


Fig. 4. Bedford cord woven according to Fig. 3

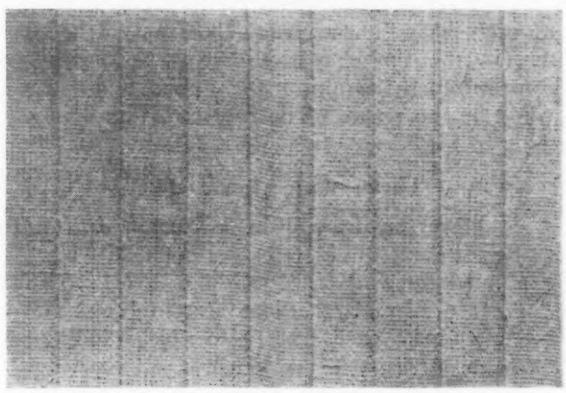


Fig. 6. Fabric woven according to Fig. 5

good practice to reed the six face ends and the one wadding end in one dent.

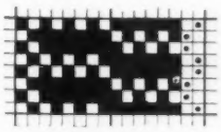
The narrower the cord, the more rounded will be the appearance. The wider the cord, the flatter will be the appearance, unless a heavy pick is inserted in the cloth. It must be remembered that, no matter how wide or narrow the cord, there will be only one depression on each side of the cord. It is obvious that the depressing power of one end on each side will have less effect on a wide cord than it would have on a narrow cord, for the pulling power of the depression ends will be exactly the same in both cases.

The term "wale" is often used when speaking of the cords in a Bedford cord. This term is often used to designate the number of cords per inch.

Irregular Reeding

Bedford cords are usually irregularly reeded in order that they may be kept within a certain sley or a certain number of cords per inch. It is often found necessary to draw three ends in one dent and four or five in another dent. This reeding pertains to the face sley only and does not include the wadding ends.

To figure a reed to fit any irregularly reeded cloth, proceed as follows: First count the total face ends in one repeat of the pattern (*two cords*). Decide on the number of dents to be used for two cords. Multiply the total face ends required in one inch of the cloth by the dents to be used for one pattern or repeat (two cords), and divide the answer by the ends per pattern. Multiply this result by two, and the answer will be the correct-sley reed to use in order to produce the given sley or ends per inch in the cloth. Never use the wadding ends in the above calculation for a reed, but do not forget to figure the wadding ends when making a layout for warps or for figuring a cost.



Chain draft

It is very important that the two depression ends, one on each side of each cord, be separated in the reed from the depression end on the side of the adjacent cord. If this is not done, the desired corded effect is practically lost.

In the drawing of Bedford cords it is a common mistake to use too small a number of harnesses. The face weave repeats on four ends and four picks. When wadding ends are used the weave will repeat on six ends and four picks, but this does not mean that six harnesses should be used. These cloths are not difficult to weave if the warp yarn is given plenty of space to interweave. When weaving a cloth in which the cords per inch are few, the greater part of the warp ends will be weaving into the cord or those ends that are interweaving three up and one down. In this case two harnesses could be used for the depression ends, because there are so few in the entire warp. If the sley is dense, it is well to use six harnesses for each cord.

If wadding ends are used, it is customary to draw a number of these ends which corresponds to the width of the cord. The wider the cords, the more wadding ends used. The repeat of the weave will require two harnesses for the wadding ends; but where three or more wadding ends are used for a cord, it is good practice to employ four harnesses for the wadding. If this is not done, the ends will be crowded in the harnesses and bad weaving will result.

When a narrow cord is being woven it is well to consider the number of depression ends that are to be drawn. The depression ends, on account of their interweaving in plain order, are obliged to interlace with the entire number of picks per inch in the cloth. They are under a greater strain than the rest of the ends in the warp, and it is well to give the depression ends plenty of space for the up-and-down movement consonant with a plain weave. We advise the use of four harnesses for these ends when the cords are narrow.

The very worst kind of second-quality cloth is woven when depression ends are constantly breaking, for this kind of warp break permits the cords to run together, and two cords will appear as one. When the warp yarn is crowded in the harnesses and one or more ends break,

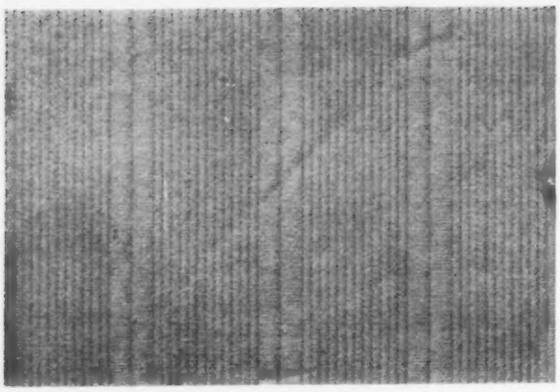


Fig. 7. Bedford cord with two widths of wales

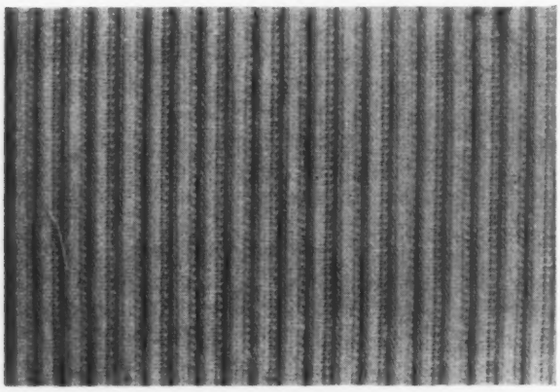


Fig. 8. Filling-twill effect between each wale

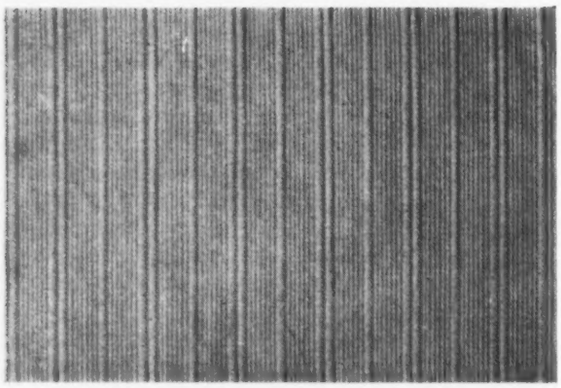


Fig. 9. One of the finest Bedford cords woven

the crowded condition will not permit the broken ends to fall back in time for the warp stop motion to function quickly enough, and very often a broken end will keep the stop motion wire up until almost half an inch of cloth has been woven.

It is the poorest economy to use a small number of harnesses if the capacity of the dobby will permit using a greater number. The saving in the cost of drawing-in on the smaller number of harnesses is quickly lost through the reduced production and the weaving of second-quality cloth.

It is the best practice to use an even number of ends per cord when laying out or drawing in the warps for the weaving of Bedford cords. Cords that are made from an odd number of ends are not so clean cut as are the cords made from an even number of ends. (I refer here to face ends.) Very few cords are made from an odd number of ends for the reason to be seen at Figs. 1 and 2.

Fig. 1 shows the repeat of a Bedford cord that repeats on an even number of ends. The weave shows that on every four picks all the ends in the cord proper rise to the surface for two picks out of the four. This is as it should be. Fig. 2 shows that on every four picks five ends only will rise to the surface on one pick and seven ends on the following pick. This is not correct, and there is really no reason why a Bedford cord should be laid out in this manner unless some difficulty has been experienced in figuring a reed to give a certain number of cords per inch with a certain number of ends per inch in the cloth. A reed can be figured and made that will give any reasonable number of ends per inch in the cloth and any number of cords per inch.

Fig. 3 shows the drawing-in and chain drafts for a Bedford cord with 26 wales to the inch and with the following number of ends and picks per inch: 156x116, 50s warp and filling for the ground construction, 2/30s cord for the wadding or backing ends. The overall count is 210x116.

The drawing-in draft shows that four harnesses have been used for the depression ends. The reason for this is the high sley and the large number of depression ends used in the repeat of the weave. In one repeat of the weave there are four depression ends and eight face ends, also two wadding ends. If only two harnesses were used for the depression ends, there would be 38 heddles per inch on each shaft. The crowded condition of the heddles and the fact that the depression ends were weaving plain would mean much friction on these ends, and bad weaving would be the result. The fabric in Fig. 4 is woven according to Fig. 3.

Three Wales per Inch

Fig. 5 shows the drawing-in and chain drafts for a Bedford cord with three wales per inch, 40s warp and filling, 20s single warp for wadding, 132x96. In this case there are 42 ends that are weaving cord and two depression ends to each wale, also nine wadding ends. The drawing-in draft is laid out for six harnesses for each wale and two harnesses for the wadding ends. The reason for this type of draft is obvious, for the bulk of the ends are weaving three up and one down, using only twelve ends per inch for the wadding ends. Never draw a wadding end immediately, next to a depression end. The fabric in Fig. 6 is woven according to Fig. 5.

Fig. 7 shows a Bedford cord with two widths of wales and constructed as follows: 170x116; overall count, 274x116; 50s warp and filling. The wide wale contains twenty face ends and eight wadding ends; the wadding is 2/40s. The narrow wale contains eight face ends and two wadding ends; the wadding is 2/40s. This is a very high-class fabric. The cord is well rounded, due to the high pick and the number of wadding ends used. On a Bedford cord of this construction, it would be well to use four harnesses for the depression ends and six harnesses for each wale, also two harnesses for the wadding in order to insure good weaving.

Fig. 8 shows a Bedford cord with a filling-twill effect weaving between each wale. The construction is 112x100, using 40s warp and 30s filling. The wales in this cloth are very well rounded because three ends of 20/20s have been used for the wadding in each.

Fig. 9 shows a very high type of fine Bedford cord of the following construction: 168x160; overall count, 182x60; 60s warp and 70s filling for the ground. This is about the finest type of Bedford cord woven, and the narrow wales are such *(Continued on page 65)*

"National Cotton Week"

Set to Start on June 1

THE first week in June will be celebrated throughout the nation as "National Cotton Week" according to plans formulated over last week-end following a conference between Robert P. Lamont, Secretary of Commerce, Arthur M. Hyde, Secretary of Agriculture, Cason J. Callaway, president of the American Cotton Manufacturers Association, and George A. Sloan, president of The Cotton-Textile Institute.

The movement is heartily endorsed by the Departments of Agriculture and Commerce and has the backing of many of the largest distributors of cotton and cotton goods in the United States.

The plan, according to Messrs. Callaway and Sloan, is to be launched in terms of sound merchandising based on the fact that cotton is now selling at the lowest price level for 15 years which is reflected in current retail prices of merchandise and also in recognition of the improvements in styling and designing by the cotton mills in the United States during the last 18 months said to excel the aggregate improvements of the preceding 18 years.

A further incentive for "National Cotton Week" is to be found in the exhibitions and cotton carnivals now sweeping the cotton growing States and the opportunity this will give to make the movement nation wide.

The Departments of Agricture and Commerce have for several years under Congressional appropriation and in cooperation with The Cotton-Textile Institute been studying new and extended uses of cotton. Their endorsement of "National Cotton Week" is therefore in keeping with the policy of Congress in recognizing the benefits to be derived by a large proportion of the country's population through acceleration of cotton demand. It is felt that a stimulation of consumer interest in such an important commodity as cotton will contribute to a general buying movement in other commodities, for it is estimated that approximately 12,000,000 persons in the United States get their living directly from cotton and cotton products.

The Cotton-Textile Institute is the clearing house for information in connection with "National Cotton Week" and will be assisted by many other organizations.

Heartily endorse and glad to cooperate in National Cotton Week. Midsummer sale catalog strongly featuring cotton goods will be mailed to reach eleven million customers at that time. All the larger Sears retail stores will capitalize the event.—GENERAL R. E. WOOD, *President, Sears, Roebuck & Co., Chicago.*

The plans for a nationwide celebration of National Cotton Week have our hearty endorsement. We will cooperate to the best of our ability.—GEORGE B. EVERITT, *President, Montgomery, Ward & Co., Chicago.*

We heartily favor the widest publicity to the fact that all classes of goods made from cotton are now being sold to the consumer at lowest prices in many years. Furthermore the styling of colored cottons is now generally thought to be the best that science and art have yet achieved.—CARSON, PIRIE, SCOTT & CO., *Chicago, Ill.*

Congratulations from one Institute to another. You could not have selected a more appropriate time. The Wholesale Dry Goods industry will give the movement its whole-hearted support.—FLINT GARRISON, *Director General, Wholesale Dry Goods Institute, New York City.*

National Cotton Week is a sound merchandising project which has the hearty endorsement of The Association of Cotton Textile Merchants of New York. The project is particularly appropriate for the first week in June because it is a period of high consumer interest in cotton wearing apparel. Our Association will cooperate fully in preparing for this event.—LEAVELLE MCCAMPBELL, *President, Association of Cotton Textile Merchants, New York City.*

Telegrams to Pres. Sloan Indicate Support

The proposal for a Cotton Week in June is heartily endorsed as very opportune. Every patriotic American should be proud to wear any article made of cotton, the national, home-grown fiber—the finest gift of the Almighty to our southern States.—H. G. LAUTEN, *Chairman of the Board, Textile Converters' Association, New York City.*

We recognize that the publicity that will attach to this movement will reach far away places through the medium of the press, radio and moving and talking pictures and feel sure that it will mean a stimulated demand abroad for American cotton goods.—FLOYD W. JEFFERSON, *President, Textile Export Association of the United States, New York City.*

The plan for the National Cotton Week in June is indeed worthwhile. This plan deserves the support of everyone interested in the well-being of the millions of people in this country who depend for their livelihood on the success of the cotton industry. The J. C. Penney Co. is glad to endorse such a movement and we shall actively cooperate with it in our 1454 stores, located in every State in the Union.—E. C. SAMS, *President, J. C. Penney Co., New York City.*

I extend the congratulations of Wm. Filene's Sons Company to the members of The Cotton-Textile Institute and say that we shall be only too glad to lend ourselves in any way possible to continuing the successful progress of your industry.—A. LINCOLN FILENE, *Chairman of the Board,* Wm. Filene's Sons Co., Boston, Mass.

You may count on our association to cooperate in any way. Just advise what you wish done.—WALTER C. TAYLOR, *Secretary and Treasurer, Southern Textile Association, Charlotte, N. C.*

Heartily approve of National Cotton Week. Our stores will be glad to cooperate to make this event outstanding success. —BERNARD F. GIMBEL, *President,* Gimbel Brothers, Inc., New York City.

Think National Cotton Week fine idea. —S. W. REYBURN, *President,* Associated Dry Goods Corp., New York City.

President Ward Thoron of the National Association of Cotton Manufacturers has appointed a committee to cooperate. Allyn B. McIntire of the Pepperell Mfg. Co. will act as chairman. Mr. Thoron said: "We are delighted to see that the plan has met with the prompt approval of many of the large distributors of textile merchandise throughout the country."—NATIONAL ASSOCIATION OF COTTON MANUFACTURERS, Boston, Mass.

You may count on the membership of the National Retail Dry Goods Association to support the efforts of your splendid organization.—D. F. KELLY, *President,* The Fair, Chicago, and *President,* the National Retail Dry Goods Association.

Our company will be glad to join with The Cotton-Textile Institute in the promotion of first week of June as National Cotton Week.—LEW HAHN, *President,* Hahn Department Stores, New York City.

Our store will give hearty cooperation to National Cotton Week. Your efforts to bring about a buying revival should be applauded by every retailer and consumer. —MAJOR B. H. NAMM, *President, Namm Store of Brooklyn, Brooklyn, N. Y.*

First 1929 Census Figures on Textile Machinery

MACHINERY figures on certain branches of the textile industry have just been released by the Bureau of the Census as a result of its canvass for the calendar year 1929. These figures are a regular part of the Biennial Census of Manufactures. The tables presented herewith show silk spindles, silk looms (also rayon looms used in the silk industry) and cards used in wool manufacture. These figures are broken down by States for the machinery which was active sometime during the census period, and the machinery in place but idle is given in the form of a total for the United States as a whole.

The census of silk spindles shows a fairly general increase in number. Details are given on spindles used for throwing and for the production of spun silk, and twister spindles are listed in a separate group.

The report on silk and rayon looms in one table shows the number by states in the census years from 1919 to 1929. Practically no change is indicated in broad-silk looms between 1927 and 1929, but there is a decrease in number of ribbon looms. This decrease has been continual each census year since 1919 and reflects the decline in the use of ribbons. In 1929 the census discriminated between automatic and non-automatic looms for the first time and the figures show that about 18% of the industry's looms in that year were automatic.

Figures on cards used in wool manufacture are interesting in showing the predominance of Massachusetts in this industry. Of the 5,169 woolen cards, 1,322 were in Massachusetts and 636 in New York which was the second state in numerical order. Of the 2,089 worsted cards, 885 were in Massachusetts and the second state was Rhode Island with 432. Of the cotton cards, operated by wool mills, totaling 456, 210 were in Massachusetts and 147 in New York.

Subsequent reports will cover production of cotton, silk and woolen goods. The report on cotton goods and perhaps the others will not only show the production by States of the various types of cloth in pounds, square yards, and value, but also the number of firms.

Silk Spindles, Active and Idle—Number, By Class and By States: 1929, 1927, and 1925

(The statistics in this table are based on data collected at the biennial censuses of manufactures for the specified years.)

State	Census Year	Producing Spindles — Total — Spinning and Twisting	Producing Spindles — Total — Spinning only (spun silk)	Producing Spindles — In Plants Engaged Primarily in Throwing, Winding, Etc. — Spinning and Twisting	Producing Spindles — In Plants Engaged Primarily in Throwing, Winding, Etc. — Spinning only (spun Silk)	Producing Spindles — In Other Silk Mills — Spinning and Twisting	Producing Spindles — In Other Silk Mills — Spinning only (spun silk)	Winding Spindles (raw silk only) In Plants Engaged Primarily in Throwing, Winding, Etc.	Winding Spindles (raw silk only) In Other Silk Mills
U. S. active spindles	1929	3,189,665	245,381	2,307,182	148,764	882,483	96,617	858,386	381,316
	1927	2,793,437	195,952	2,062,852	108,120	730,585	87,832	719,009	355,200
	1925	2,722,876	171,871	2,032,366	93,267	690,510	78,604	651,419	340,390
Ala.	1929	288	.....	.....	.....	288	.....	.....	.....
Calif.	1929	2,412	.....	.....	.....	2,412	.....	.....	1,110
	1927	6,404	.....	.....	.....	6,404	.....	.....	2,656
	1925	3,026	.....	.....	.....	3,026	.....	.....	1,349
Conn.	1929	116,656	42,784	26,360	5,680	90,296	37,104	4,150	29,105
	1927	123,647	37,216	34,188	.....	89,459	37,216	5,280	30,209
	1925	152,845	37,216	43,008	.....	109,837	37,216	5,710	37,994
Ga.	1929	31,404	.....	18,844	.....	12,560	.....	2,652	1,500
	1927	29,392	.....	20,944	.....	8,448	.....	2,588	2,100
	1925	10,948	.....	10,948	.....	.....	.....	2,652	.....
Ill.	1929	37,900	.....	37,900	.....	.....	.....	55,704	.....
	1927	32,529	.....	32,529	.....	.....	.....	50,911	.....
	1925	22,593	.....	22,593	.....	.....	.....	37,258	.....
Ind.	1929	6,290	.....	6,290	.....	.....	.....	9,700	.....
	1927	2,688	.....	2,688	.....	.....	.....	9,700	.....
Me.	1929	1,106	.....	.....	.....	1,106	.....	.....	350
	1927	352	.....	.....	.....	352	.....	.....	.....
	1925	1,934	.....	.....	.....	1,934	.....	.....	650
Md.	1929	33,158	.....	32,558	.....	600	.....	11,520	342
	1927	33,758	.....	32,558	.....	1,200	.....	11,320	684
	1925	35,794	.....	31,354	.....	4,440	.....	10,300	680
Mass.	1929	156,548	76,272	19,220	39,784	137,328	36,488	11,376	28,481
	1927	138,800	75,702	11,386	26,970	127,414	48,732	6,136	24,606
	1925	127,964	66,419	10,192	25,031	117,772	41,388	6,882	22,820
Mich.	1929	11,536	.....	.....	.....	11,536	.....	.....	2,700
	1927	16,500	.....	.....	.....	16,500	.....	.....	5,800
	1925	16,576	.....	.....	.....	16,576	.....	.....	5,740
N. H.	1929	1,200	2,520	1,200	2,520	.....	.....	.....	.....
	1927	600	2,520	600	2,520	.....	.....	.....	.....
	1925	440	2,520	440	2,520	.....	.....	.....	.....
N. J.	1929	265,046	20,692	187,846	19,992	77,200	700	89,539	56,515
	1927	265,938	2,922	171,610	2,922	94,328	.....	59,851	89,442
	1925	300,167	2,922	189,729	2,922	110,438	.....	60,959	76,560
N. Y.	1929	240,718	23,997	167,774	22,480	72,944	1,517	62,356	26,672
	1927	243,234	25,044	151,996	23,184	91,238	1,860	59,568	31,159
	1925	225,003	23,584	163,448	23,584	61,555	.....	56,230	23,719
N. C.	1929	11,643	.....	4,643	.....	7,000	.....	5,520	4,900
	1927	.....	.....	.....	.....	.....	.....	.....	62
	1925	5,019	.....	1,925	.....	3,094	.....	2,700	4,718
Pa.	1929	2,138,674	24,964	1,720,565	4,156	418,109	20,808	559,473	184,197
	1927	1,797,993	13,848	1,534,679	13,824	263,314	24	475,387	138,186
	1925	1,743,469	16,210	1,494,475	16,210	248,994	.....	421,096	135,880
R. I.	1929	58,024	23,152	9,120	23,152	48,904	.....	4,340	39,646
	1927	38,208	23,200	6,280	23,200	31,928	.....	3,040	29,052
	1925	18,924	23,000	6,080	23,000	12,844	.....	1,440	29,020
S. C.	1929	.....	.....	.....	.....	.....	.....	.....	1,080
Tenn.	1929	27,120	.....	24,920	.....	2,200	.....	12,484	2,472
	1927	9,864	.....	9,864	.....	.....	.....	14,474	.....
	1925	8,700	.....	8,700	.....	.....	.....	9,270	.....
Va.	1929	38,742	31,000	38,742	31,000	.....	.....	21,272	2,246
	1927	44,330	15,500	44,330	15,500	.....	.....	13,234	1,244
	1925	31,774	.....	31,774	.....	.....	.....	11,202	1,260
W. Va.	1929	11,200	.....	11,200	.....	.....	.....	8,300	.....
	1927	9,200	.....	9,200	.....	.....	.....	7,520	.....
	1925	17,700	.....	17,700	.....	.....	.....	25,720	.....
Idle spindles Total for U.S.	1929	86,457	11,422	39,771	512	46,686	10,910	19,691	27,774
	1927	138,238	22,840	89,423	13,824	48,815	9,016	40,766	24,650
	1925	105,377	27,947	78,738	27,935	26,639	12	54,926	17,956

Silk and Rayon Manufactures—Looms[1], Active and Idle-Number, By Class, By States: 1929 and 1927

The statistics in this table are based on data collected at the biennial censuses of manufactures for the specified years.

Machinery	United States 1929	United States 1927	Connecticut 1929	Connecticut 1927	Massachusetts 1929	Massachusetts 1927	New Jersey 1929	New Jersey 1927	New York 1929	New York 1927	Pennsylvania 1929	Pennsylvania 1927	Rhode Island 1929	Rhode Island 1927	Other States 1929	Other States 1927	United States 1929	United States 1927
	Active Some Time Within the Census Year																Idle Throughout Census Year	
Looms,[1] aggregate	113,860	114,819	6,931	5,707	6,612	5,300	27,228	34,235	7,355	7,798	46,775	47,720	10,465	9,038	8,494	5,021	7,119	8,743
Automatic	20,630	(2)	1,866	(2)	1,052	(2)	5,027	(2)	1,635	(2)	7,248	(2)	830	(2)	2,972	(2)	887	(2)
Nonautomatic	93,230	(2)	5,065	(2)	5,560	(2)	22,201	(2)	5,720	(2)	39,527	(2)	9,635	(2)	5,522	(2)	6,232	(2)
Other than velvet ribbon	105,666	106,225	5,159	3,877	6,476	5,300	24,940	31,692	6,718	6,706	43,780	44,895	10,465	9,038	8,128	4,717	5,751	5,971
Automatic	19,192	(2)	1,728	(2)	916	(2)	4,311	(2)	1,552	(2)	7,029	(2)	830	(2)	2,826	(2)	541	(2)
Nonautomatic	86,474	(2)	3,431	(2)	5,560	(2)	20,629	(2)	5,166	(2)	36,751	(2)	9,635	(2)	5,302	(2)	5,210	(2)
Reed space over 40 inches	83,427	88,068	4,632	3,328	5,566	4,637	19,391	25,372	5,222	4,965	33,771	38,441	8,590	7,955	6,255	3,370	3,636	4,606
Automatic	14,468	(2)	1,728	(2)	696	(2)	2,874	(2)	1,074	(2)	5,701	(2)	394	(2)	2,001	(2)	241	(2)
Nonautomatic	68,959	(2)	2,904	(2)	4,870	(2)	16,517	(2)	4,148	(2)	28,070	(2)	8,196	(2)	4,254	(2)	3,395	(2)
Reed space 40 in. and under	22,239	18,157	527	549	910	663	5,549	6,320	1,496	1,741	10,009	6,454	1,875	1,083	1,874	1,347	2,115	1,365
Automatic	4,724	(2)	.....	(2)	220	(2)	1,437	(2)	478	(2)	1,328	(2)	436	(2)	825	(2)	300	(2)
Nonautomatic	17,515	(2)	527	(2)	690	(2)	4,112	(2)	1,018	(2)	8,681	(2)	1,439	(2)	1,048	(2)	1,815	(2)
Velvet	2,716	2,083	1,634	1,647	100	.....	608	183	42	40	282	213	.....	.....	50	.....	175	432
Automatic	266	(2)	138	(2)	100	.....	28	(2)	.....	(2)	.....	(2)	.....	.....	.....	.....	90	(2)
Nonautomatic	2,450	(2)	1,496	(2)	.....	.....	580	(2)	42	(2)	282	(2)	.....	.....	50	.....	85	(2)
Ribbon	5,478	6,511	138	183	36	.....	1,680	2,360	595	1,052	2,713	2,612	.....	.....	316	304	1,193	2,340
Automatic	1,172	(2)	.....	(2)	36	.....	688	(2)	83	(2)	219	(2)	.....	.....	146	(2)	256	(2)
Nonautomatic	4,306	(2)	138	(2)	.....	.....	992	(2)	512	(2)	2,494	(2)	.....	.....	170	(2)	937	(2)
Jacquard machines	7,774	8,042	208	264	79	98	4,581	3,991	228	292	2,214	3,137	458	77	6	183	1,495	1,439
Braiding machines[4]	12,725	23,677	161	192	1,181	1,411	1,498	3,903	4,643	12,030	3,576	4,216	.....	.....	1,666	1,935	5,032	(3)

[1] With or without jacquard attachments [2] Not reported separately [3] No data [4] Includes all, ewhther connected with or disconnected from looms

Silk and Rayon Manufactures—Active and Idle Looms[1]—Number, By Major Classes, By States: 1919 to 1929[2]

The statistics in this table are based on data collected at the biennial censuses of manufactures for the specified years.

Class	Active Some Time Within the Census Year: United States	Con-necticut	Massa-chusetts	New Jersey	New York	Pennsyl-vania	Rhode Island	Virginia	Other States	Idle Throughout the Census Year: United States	Con-necticut	Massa-chusetts	New Jersey	New York	Pennsyl-vania	Rhode Island	Virginia	Other States
Looms, aggregate:																		
1929	113,860	6,931	6,612	27,228	7,355	46,775	10,465	1,754	6,740	7,119	170	394	2,037	575	3,161	639	...	143
Automatic (with filling change)	20,630	1,866	1,052	5,027	1,635	7,248	830	16	2,956	887	....	126	381	111	97	150	...	22
Nonautomatic (without filling change)	93,230	5,065	5,560	22,201	5,720	39,527	9,635	1,738	3,784	6,232	170	268	1,656	464	3,064	489	...	121
1927	114,819	5,707	5,300	34,235	7,798	47,720	9,038	1,304	3,717	8,743	850	431	2,490	732	3,768	83	111	278
1925	111,513	5,688	3,883	34,773	8,359	46,102	8,058	1,087	3,563	9,801	1,124	502	3,423	961	3,086	136	...	569
1923	102,647	5,981	3,474	32,324	8,781	39,830	7,806	1,036	3,415	14,302	561	192	4,842	1,278	6,740	131	109	449
1919	96,438	5,141	3,218	34,681	7,392	37,482	5,240	538	2,746	10,388	319	185	3,654	1,331	3,248	880	292	479
Broad silk:[3]																		
1929	108,382	6,793	6,576	25,548	6,760	44,062	10,465	1,754	6,424	5,926	166	394	1,420	461	2,756	639	...	90
Automatic (with filling change)	19,458	1,866	1,016	4,339	1,552	7,029	830	16	2,810	631	....	126	185	83	86	150	...	1
Nonautomatic (without filling change)	88,924	4,927	5,560	21,209	5,208	37,033	9,635	1,738	3,614	5,295	166	268	1,235	378	2,670	489	...	89
1927	108,308	5,524	5,300	31,875	6,746	45,108	9,038	1,304	3,413	6,403	850	428	1,503	409	2,824	83	111	195
1925	103,513	5,570	3,883	31,472	7,213	42,935	8,058	1,087	3,295	7,353	1,107	502	2,093	515	2,467	136	...	533
1923	94,172	5,759	3,474	29,298	7,058	36,551	7,806	1,036	3,190	11,456	522	192	3,379	1,092	5,697	131	109	334
1919	87,215	4,974	3,218	30,683	6,144	33,853	5,240	538	2,565	7,890	216	185	2,837	868	2,164	880	292	448
Ribbon:																		
1929	5,478	138	36	1,680	595	2,713	.....	....	316	1,193	4	...	617	114	405	...	...	53
Automatic (with filling change)	1,172	....	36	688	83	219	.....	....	146	256	....	...	196	28	11	...	...	21
Nonautomatic (without filling change)	4,306	138	....	992	512	2,494	.....	....	170	937	4	...	421	86	394	...	...	32
1927	6,511	183	....	2,360	1,052	2,612	.....	....	304	2,340	....	3	987	323	944	...	...	83
1925	8,000	118	....	3,301	1,146	3,167	.....	....	268	2,448	17	...	1,330	446	619	...	...	36
1923	8,475	222	....	3,026	1,723	3,279	.....	....	225	2,846	39	...	1,463	186	1,043	...	...	115
1919	9,223	167	....	3,998	1,248	3,629	.....	....	181	2,498	103	...	817	463	1,084	...	...	31

[1] With or without Jacquard attachments. [2] No data for 1921. [3] Including velvet looms.

Active and Idle Cards in Wool Manufactures, By Industry and By States: 1929

The statistics in this table are based on data collected at the biennial census of manufactures for 1929.

Class and State	Total	Active at Any Time Within the Year: In Woolen-goods	In Worsted-goods	In Carpet and Rug	In Felt-goods	In Wool-felt Hat	Idle Through-out of Year
United States:							
Woolen cards[1]	5,169	3,792	329	599	359	90	246
Worsted cards	2,089	67	1,969	62	..	..	132
Cotton cards	456	82	256	117	1	..	67
Woolen cards:[1]							
California	23	17	...	...	6	..	...
Connecticut	469	340	...	100	27	2	15
Georgia	55	55	...	...	...	..	...
Illinois	67	25	...	...	42	..	...
Indiana	46	46	...	...	..	..	...
Iowa	15	15	...	...	..	..	1
Kentucky	23	23	...	...	...	..	...
Maine	512	472	21	...	19	..	21
Maryland	25	25	...	...	...	..	...
Massachusetts	1,322	979	146	67	97	33	69
Michigan	56	56	...	...	..	..	2
Minnesota	47	47	...	...	..	..	6
Missouri	8	8	...	...	..	..	...
New Hampshire	316	305	5	...	6	..	25
New Jersey	186	87	60	13	26	..	9
New York	636	157	18	357	80	24	25
North Carolina	51	51	...	...	...	..	...
Ohio	79	33	13	...	33	..	...
Oregon	43	43	...	...	...	..	...
Pennsylvania	555	441	12	62	9	31	53
Rhode Island	241	212	27	...	2	..	...
Tennessee	74	74	...	...	..	..	...
Utah	7	7	...	...	..	..	...
Vermont	143	116	27	...	...	..	5
Virginia	39	36	...	...	3	..	...
Washington	8	8	...	...	..	..	...
West Virginia	35	35	...	...	..	..	...
Wisconsin	88	79	...	...	9	..	15
Worsted cards:							
Connecticut	6	6	...	...	..	..	36
Illinois	4	...	4	...	..	..	...
Kentucky	15	...	15	...	..	..	...
Maine	26	...	26	...	..	..	...
Massachusetts	885	16	849	20	..	..	44
New Hampshire	84	...	84	...	..	..	14
New Jersey	197	9	188	...	..	..	11
New York	79	...	40	39	..	..	...
Ohio	69	...	69	...	..	..	...
Oregon	4	...	4	...	..	..	...
Pennsylvania	270	34	233	3	..	..	8
Rhode Island	432	...	432	...	..	..	12
Texas	13	...	13	...	..	..	3
West Virginia	...	...	...	...	..	..	4
Wisconsin	5	2	3	...	..	..	...
Cotton cards in wool mills							
California	1	...	...	...	1	..	...
Georgia	23	23	...	...	..	..	...
Maine	56	56	...	...	..	..	...
Massachusetts	210	...	210	...	..	..	47
New York	147	...	30	117	..	..	...
North Carolina	...	...	...	...	..	..	20
Pennsylvaia	16	...	16	...	..	..	...
Tennessee	3	3	...	...	..	..	...

[1] Includes shoddy cards.

NOTE: Woolen cards are reported as "number of sets."

Successful Installation of a Wage Incentive *Requires Adequate Preparation*

By Frederick Albert Hayes

◆ *Our Questions and Answers Department recently received the following inquiry from a reader: "We shall appreciate suggestions regarding the establishment of wage incentives which can be installed in our mule and card rooms. The chief problem confronting us at present is the question of style. Due to the numerous fabric designs which are in continuous process in our plant, we have been unable thus far to improve our wage policy in any department other than our weave room. We realize that we are not the only mill confronted with the problem of diversified styles, and we should like to know how other mills have attacked the problem." It is believed that the accompanying article which was written to supply the information requested will be of interest to other readers.*

WAGE incentives require skillful installation to produce the greatest results in a minimum time. One of the chief difficulties with their installation in industrial plants of any kind has been the thought on the part of many that a wage incentive was a cure-all for manufacturing problems of any description. Through mis-applications, failures have resulted which placed all schemes in a poor light.

It is not correct to assume that a wage incentive will work anywhere; and while there are a variety of reasons why wage incentives will not work, the positive attack is to show the conditions under which they will work. It is of prime importance to establish the fact that a wage incentive emphatically is not a panacea. It is merely the last stage of a series of operations of good management, and it is very necessary that the preliminary steps be taken. These steps are: (1) organization, (2) obtaining cooperation, (3) planning, (4) standardization, and (5) installing the wage incentive. Approximately 80% of the possible savings are made in the first four phases. The wage incentive itself is merely a means of making good management effective by securing the interested and cooperative effort of the worker.

Common Mistakes

While there are successful non-financial incentive schemes which can be applied during the earlier stages, the workman is finally interested in the monetary return for his effort. To the extent that the preliminary stages of the installation of a wage incentive are ignored, just to that extent is the liability for failure increased. A common mistake is to set standards before the department is prepared. Some think that all there is to setting standards is to get a stop watch and go to work.

A minor executive of a plant was recently about to purchase a stop watch and study operations and men. Inquiry disclosed that he had no experience in such observation; in fact, he was naïve enough to state that the watch would be kept in his pocket and the men would not know that a study was being made. At my earnest solicitation, he promised not to buy a stop watch; and, undoubtedly, thereby saved both himself and company a great deal of trouble.

It is not common sense to expect the worker to be spied upon and enjoy it, or permit it, if he can help it. It is just as human for a man running a machine to resent the presence of a white-collar observer as it would be for the president of a corporation to have an unannounced visitor appear in his office to observe his time spent in dictating letters. Undoubtedly, the president would have the visitor ejected more or less forcibly; and the impulse of the factory worker is identical, but for obvious financial and diplomatic reasons, he might not so express himself. On the other hand, cases are not too infrequent where the stop-watch operator has been manhandled and thrown out of a factory. The technique was wrong.

There are certain well-recognized approaches to studying any operation and setting standard times by use of a stop watch which insure successful results. If these essential preliminaries are ignored, it is not surprising that the usual result is failure. The same is true of the wage-incentive installation. The essential preliminaries cannot be ignored with the expectation of eventual success. A textile manufacturer may have in mind a particular department, such as the mule and card room, and be honestly seeking for some plausible wage incentive which may be endorsed by the worker and the management. The factor of frequent style change seems to be insurmountable to some managements, and they conclude that nothing can be done in the way of a wage incentive.

There may be places where a wage incentive will not produce astonishing results or substantial savings, but it may be accepted that a wage incentive properly adapted to a given set of conditions will almost invariably produce results better than those of the day-rate system. The greatest results, of course, can be expected from a transition from day work to some other incentive scheme.

Repetitive Operations

Any work of a repetitive nature lends itself to a wage incentive. The more the machine speed controls the output, the less advantage is derived from an incentive, particularly where production is maintained by the constant flow of materials to the machine. If an operator

has no opportunity through his initiative or by his skill of making his service of greater value by producing a larger amount of acceptable product, that operator is best paid by the day rate. It is also possible to conceive of a situation where such high efficiency has already been obtained under a day-rate plan that no better results can be expected or secured. Possibly such a situation exists somewhere, but the writer has yet to observe it. He finds no record in the extensive literature on the subject of such conditions.

Work which is repetitive seems to be the single requirement for the establishment of the successful wage incentive, and this brings up the subject of style changes as an insurmountable obstacle because of the numerous changes required in the manufacturing operations. By analyzing the steps of any manufacturing operation, they can be finally reduced to a certain number of minor operations which most certainly are repetitive. For instance, in the card room stripping of a card is required more or less often, depending upon the character of the stock being carded. Irrespective of the number of times a card has to be stripped, the operation of stripping is always about the same; and through observation, a standard can be set up for that particular job. If arrangements are made whereby it becomes financially worthwhile to the men involved in the operation and stripping of the cards to reduce the stripping operation, which is an essential but non-productive operation, to a minimum time, it is quite likely that the management will be surprised in how short a time the card can be properly stripped.

The same reasoning can be applied to any operation: First, can a standard be set? And then, is it sufficiently repetitive to make it worthwhile to set a standard? The answer to the first question is obvious, because a standard can be set on almost anything. To illustrate, an overall time can be set for the operation of carding a particular kind of stock. Let us determine the standard hours for carding 1,000 lb. of stock. First, the overall time is determined directly, and then checked by the addition of the standards set on the individual operations, plus a fair allowance for stripping, unavoidable delays, grinding, oiling, cleaning, belt repairing, etc.

If the standard is properly set, an incentive will appeal to the operators, preferably the group, to make the machines operate as near 100% of its time that is possible, irrespective of stock changes. The only possible influence that a style change can have is of a change of stock on the card and the necessity of cleaning the machine. Different stocks may require a different feed, but that can be accounted for in the standards that are set up for the particular stock in question. There is nothing to be gained by crowding the cards. In fact, there is a great deal to be lost, and it will require supervision to see that the operators run the stock properly. Any incentive scheme requires less supervision from the production angle, but more inspection of the product to maintain quality.

Ewing Galloway

There are any number of wage incentive schemes which, if properly applied, will produce better results than the day-rate plan. Any good plan must have the following characteristics:

1. It must increase wages.
2. It must guarantee a minimum rate below which it is not possible to fall, this rate being the market for the class of work involved.
3. It must be understandable by the workman.
4. It must reduce unit costs.

The success of any scheme is dependent upon the care by which the standards are prepared. This may either be done by using past averages, or much better, by observation through time study. There are plants in which it seems impossible to show the desirability of time study, and the usual method in such cases is to set standards by the use of past averages. Such standards are necessarily loosely set, and the bonus cannot be very generous, rewarding the worked usually with not more than half of the time saved. If a standard is set by time study, the worker reaching over a certain percentage of efficiency may get as much as all of the time saved. A plan used very largely in industry today is to convert the production into terms of time consumed, because time is not a changeable item. To illustrate: It might be found that the time necessary to card 1,000 lb. of a certain kind of stock and deliver a specified roving ready for a spinning operation, was 25 hours. Whether or not this figure is even approximately right, has nothing to do with the illustration of the system. Assuming that 25 hours included the allowance as already mentioned, if the actual hours required to do this work was 25 hours, then the efficiency would be 100%. If more hours were consumed, say 30 hours, the efficiency would be 25 divided by 30, namely 83.33%. Let us say that the 25 hours represented what normally would be expected, and at that point you were willing to pay a bonus of 10% over the base rate. Let us further assume that you are willing to pay 1% bonus for each 1% increase in efficiency over 90%. It is obvious that at 83%, the worker has not obtained the bonus; at 90% his bonus starts; and if his base rate is 50 cents per hour, at 100% efficiency he would be earning 55 cents, and at 110% efficiency, 60 cents. Correspondingly, the unit cost to the manufacturer for the roving would be decreased because of the time saved.

It is not suggested that the method outlined above is the only scheme that will work, as there are many modifications, all based on the same fundamentals. Group payments are to be desired wherever the possibility exists, as the gang spirit is developed to the utmost. Variation among individuals because of differing ability and effort is cared for by a base rate which properly compensates for these differences. Thus each man in the group is able to get a fair return for his own effort and skill, and is further rewarded by the bonus paid to a group because of their success in maintaining quality and achieving or beating standards which have been fairly set.

Mill Economies Through Efficient Machine Shop

Stressed by S.T.A. Mechanics

ADEQUATE machine shop equipment, if manned by skilled mechanics and intelligently supervised, will permit textile mills substantially to reduce outlay for supply parts and consequently effect important economies in their production costs, particularly in weaving mills and finishing plants, according to the general opinion of members attending the spring meeting of the Master Mechanics Section of the Southern Textile Association, held at Parker High School, Greenville, S. C., May 8. The average textile manufacturing concern, it was pointed out, unfortunately has failed to appreciate the importance of purchasing modern shop equipment.

E. P. McWhirter, master mechanic, Monarch Mills, Union, S. C., was elected chairman of the section for the ensuing term. H. H. Iler, mechanical engineer, Union Bleachery, Greenville, S. C., was named assistant chairman in charge of steam generation and power; W. G. Young, mechanical engineer, Wiscassett Mills Co., Albemarle, N. C., retiring chairman of the section, will act as assistant chairman in charge of electrical work, while R. E. West, master mechanic, Arcadia Mills, Spartanburg, S. C., will handle activities relating to machine shop work.

Mill Village Lighting

Many southern mills, according to Chairman Young, are losing a considerable amount of money that could be saved in village lighting. Acting upon his request, A. C. Morrison, superintendent of meter department, Duke Power Co., Charlotte, N. C., discussed several problems relating to the cost of village illumination. It was stated that several mills recently enlisted the power company's assistance in determining the amount of current consumed on their village lighting circuits and in most cases found, to their surprise, that this consumption was often much too high. The average decrease in current consumption, after operatives knew that metering was in evidence, was about 50%, it was said.

The speaker exhibited two types of meters for use on village lighting circuits: an indoor meter and an outdoor model that is totally enclosed and easy to install. Mr. Morrison recommended the outdoor type meter for average textile-mill village conditions.

Machine Shop Equipment

Several members declared that mill executives should be impressed with the fact that in order to save money by manufacturing duplicate supply parts it is essential that machine shops be properly equipped. R. E. West, of Arcadia Mills, stated that his mill's management has been pleased with work produced in his shop during the last six months, but that further savings could have been made had the shop been equipped with additional machinery, such as a slotter and an extra grinder.

Chairman Young gave a list of equipment installed in the machine shop of Wiscassett Mills Co., Albemarle, N. C., a yarn spinning mill of 96,000 spindles. This shop, he explained, is one of the most completely equipped of any operated by a southern textile mill and has clearly proved to be an economical investment. The machines were, as follows:

5 Engine lathes
1 Radial drill press
2 Stiff-leg drill presses
2 High-speed friction drill presses
1 Modern shaper
1 Modern planer
1 Automatic gear cutter
1 Fellows gear shaper
1 Gould & Eberhardt hobbing machine
1 Milling machine
1 Internal key-seating machine
1 Hydraulic press
1 Arbor press
6 Modern electric drills

With the above equipment, Chairman Young stated that it was possible to duplicate practically any part manufactured by the textile machinery builders. The chief question, he pointed out, is whether or not it is more economical for the mill to finish machine parts in its own shop or purchase them already finished from the machinery builders. He estimated that the saving effected in his shop as a result of manufacturing supply parts was, conservatively, about 25%.

G. L. James, master mechanic, Clinton (S. C.) Cotton Mills, a weaving plant of 73,000 spindles and 1,662 looms, stated that he makes about 50% of the supply parts required. Replying to a question from the floor, he stated that the saving was, roughly, about 50% as compared with the cost of such parts if purchased from the machinery builders. His shop is equipped, as follows:

3 Lathes
1 Drill press
1 Milling machine
1 Hand gear cutter
1 Gear shaper

Mr. James was of the opinion that the shop should also be equipped with a hobbing machine, a planer, a radial drill press and another engine lathe.

The machine shop of Woodside Cotton Mills Co., Greenville, S. C., a mill of 112,000 spindles and 2,500

looms, is equipped, according to H. H. Epting, master mechanic, with the following machines:

4 Engine lathes
2 Drill presses
1 Milling machine
1 Automatic gear cutter

It is necessary to operate the automatic gear cutter practically the entire time and also to cut gears on the milling machine part of the time. With additional lathes, a modern gear cutter and a radial drill press, Mr. Epting felt that the machine shop could effect further savings for the mill.

J. H. Walker, master mechanic, Grendel Mills, No. 1, Greenwood, S. C., stated the purchase of additional shop equipment had made it possible for his organization to save a considerable amount of money by the manufacture of duplicate parts. His shop contains the following machines:

3 Lathes
1 Milling machine
1 Gear shaper
1 Automatic gear cutter
1 Radial drill press
1 Emery wheel
1 Electric welder
1 Acetylene welder

An internal key-seating machine, according to Mr. Walker, is about the only additional piece of equipment needed in his shop.

L. W. Misenheimer, master mechanic, Piedmont Print Works, Taylors, S. C., reported that 14 complete machines had been built by his machine shop organization since Jan. 1, 1930. Six machines which would have cost $650 each f.o.b. Philadelphia were built for $208 each. Four machines which would have cost $560 each if purchased from the machinery builder were erected for $175.60 each. In addition, a trade-marking machine that would have cost $900 f.o.b. Philadelphia was built for less than $300.

Should Set High Wage Standard

Textile mills should be willing to pay wages that are high enough to obtain efficient mechanics, according to Mr. Misenheimer, who declared that many mills are not realizing full benefit from the equipment they already have because of their short-sighted policy in employing second-rate mechanics for their machine shops.

This point was emphasized by several other members also. In discussing the cost of village lighting, Mr. Misenheimer stated that upon installing a meter on the main line into the mill village it was found that the average cost of current amounted to the high figure of $2.48 per house per month. Following a complete check of the village, in which many improperly installed appliances were detected, the monthly current consumption for the lighting circuit has been reduced to a minimum of $1.16 per house.

"Our shop doesn't claim to compete with eastern machinery builders' shops," said E. P. McWhirter, master mechanic, Monarch Mills, Union, S. C., "but we can make loom parts at a saving of not less than 60%. There are hundreds of parts on which we can make a saving. Castings from the local foundries cost 5 to 5½c. per pound, and are of better quality than formerly. Castings used by the machinery builders are usually softer. Some southern foundries are making castings now of 100% pig iron."

Equipment in the Monarch Mills machine shop, as listed by Mr. McWhirter, was as follows:

1 Fellows gear shaper
1 Milling machine
3 Lathes
1 Internal key-seating machine
1 Universal grinder

He also stated that adjustable expansion reamers were being made in his shop at a cost of about 75c. each. The body of the reamer is made of 40% carbon Maxel steel. Cutters are made from high-speed tool steel.

Inspect Parker H.S. Equipment

Prior to the luncheon in the Parker High School dining room, members and visitors inspected the machine shop and other departments of the Parker Vocational School. The building contains a mechanical drawing room and cabinet shop on the first floor, administrative offices and the machine shop on the second floor, and a miniature cotton mill from opening through weaving on the third floor. Day students spend 15 hours each week in the machine shop during the 9th, 10th and 11th grades. Eight students are completing the course in machine shop work this spring. H. H. Iler, mechanical engineer, Union Bleachery, Greenville, S. C., stated that a graduate of the school now employed in his shop, has convinced him of the thoroughly practical course of study followed by students there.

E. P. McWhirter, elected chairman, Master Mechanics Section, S. T. A.

Special entertainment by Parker High School students in music was enjoyed during the luncheon. L. P. Hollis, superintendent of the Parker District Schools, acted as master of ceremonies. Honor visitors present included W. W. Cobb, superintendent, Norris Cotton Mills Co., Cateechee, S. C.; J. B. Mitchell, superintendent, Belton (S. C.) Mills; G. L. Austin, superintendent, Alice Mfg. Co., Easley, S. C., and C. W. McSwain, general manager, Pendleton Mfg. Co., La France, S. C. They responded with interesting remarks and unanimously praised the work of the master mechanics section.

Fall Meeting at Gastonia

Gastonia, N. C., was selected as the place of the fall meeting. The local committee in charge of arrangements for the Greenville meeting consisted of H. H. Iler and C. A. Spencer, of Union Bleachery; Loui Greet, director of vocational training, and L. P. Hollis, superintendent, of the Parker District Schools.

Bradford Technical College

Emphasizes Instruction in Worsted Manufacture

By C. A. Collier

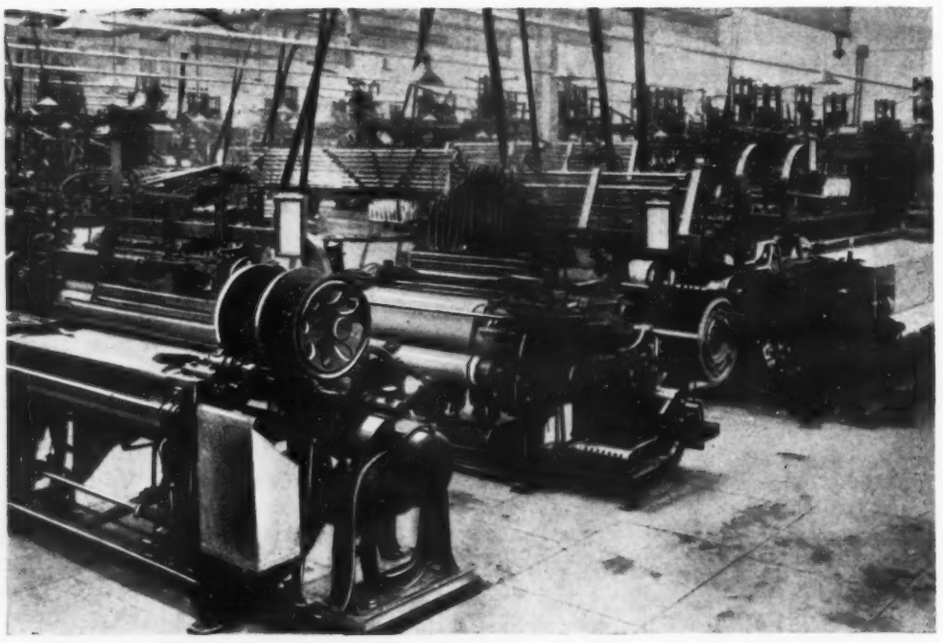
SITUATED in the center of the English worsted industry, Bradford Technical College, in its textile department, concentrates largely on instruction in worsted manufacture and aims to supply the advanced technical instruction which is necessary to prepare students for their life work in the industry. The textile department of the college, together with a power house, is located in a block adjacent to the main college buildings, and is equipped with a complete plant for scouring, carding, combing, spinning, weaving, dyeing, and finishing of textiles. In this plant, which constitutes a model mill, all operations involved in the manufacture of textiles from the raw material to the finished fabric are carried out in a practical way. At every point, however, the importance of experimental work and applied research has been kept in view, and many of the machines have been designed or adapted to this end.

Courses Made Practical

Suitable lecture and practical courses are arranged for the particular branch of the industry in which the student is interested, but due regard is paid to the necessity of having a substantial knowledge of related subjects, which makes for a higher total efficiency throughout the industry. Work of the student consists largely in the dismantling, leveling, adjusting, and re-erecting of machinery, and processing of bulk lots of materials. However, attention is paid to the theoretical point of view, along with the study of the factors affecting efficiency and economic output.

Lifter and knock-off motions are explained, as well as the theory of draft and ratch. Competitions are held in the production of fancy yarns. These entail a thorough understanding of the various cams and rocking motions as well as the requirements of the market. Wherever possible, the student is urged to produce yarns which can be manufactured commercially.

Instruction in mill organization is also given. This covers departmental bookkeeping, systems of calculating costs, efficiency in laying-out plants, marketing, etc. The student of weaving has to tune and adjust the various looms and must endeavor to produce original effects which, when salable, are marketed by local firms. The manipulation of double-lift double-cylinder, open and center-shed jacquards is performed, along with the mounting of tappet, dobby, and jacquard looms for the production of gauze fabrics. Other weaving mechanisms which are made familiar to the student include complex jacquards, including twills, pressure, split, ingrain, Brussels, Wilton, and Utrecht machines, heddle and harness mountings, and automatic filling—replenishing motions.

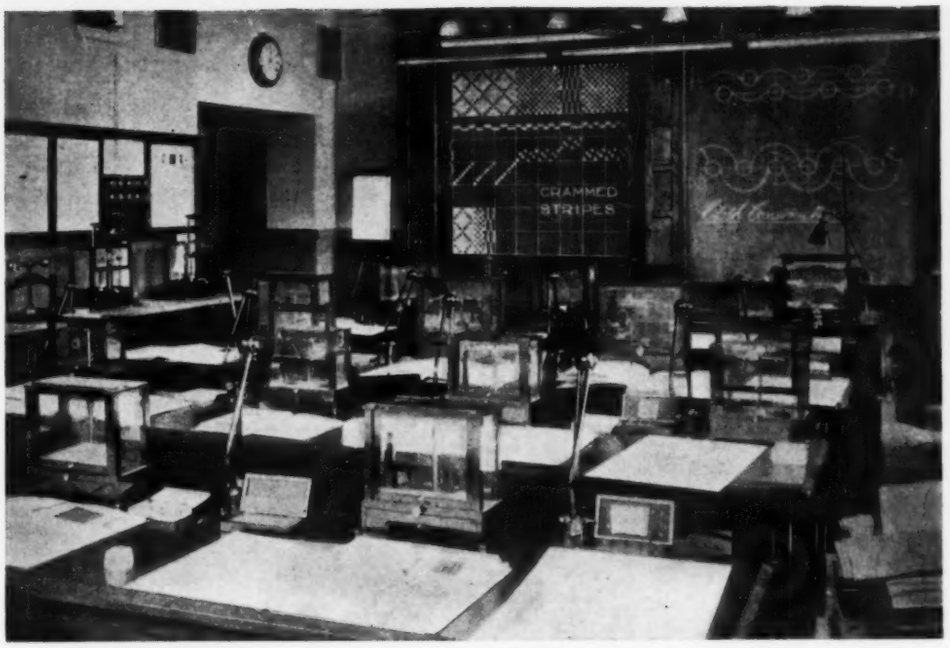


Weaving shed at Bradford Technical College contains looms of many types

An outstanding course is the study of design and color in fabrics. This includes the analysis of current examples of textiles for design, color, and structure. The

students are taught to prepare patterns in all Bradford styles, including brocades, tapestries, plushes, and gauzes. A brief survey is given of the general history of art. Modern trends are discussed and compared with previous fashions. Estimates are made, based on carefully tabulated results extending over many years, of the periodic return to favor of certain standard styles.

Dyeing has also received careful consideration both in the equipment and syllabus. The course deals with the theory and practice of dyeing with regard to a wide range of vegetable and animal fibers, separately and in combination. The cause and elimination of defects is investigated along with the production of novel effects. Methods of fireproofing and waterproofing are studied.



Cloth-analysis room is completely equipped with modern instruments

It is not possible to give a full list of the various departments and the equipment contained in each, but glimpses may be taken of those of more general interest.

Equipment Is Complete

A storeroom is arranged for the weighing-in of raw materials and for storage of scoured wool, noils, tops, and gray and finished pieces. Noils and tops are delivered from combs and finishing boxes directly above this room in the same manner as this operation is carried out in the industry.

The scouring, drying, and preparing room is equipped with a complete set of self-cleaning scouring bowls, a compartment drying machine, and a set of prepared boxes for long wools. The water and effluent systems of these scouring bowls are a special feature.

The carding machine is identical with those used in the worsted trade, and the backwasher is of the hot-air type. A noble comb is installed with a complete change of circles. There is a continental comb, and punch box and finishers for both botany and crossbred. Three separate sets of drawing machinery are arranged to draw the combed sliver on three distinct systems.

A continental set, including intersecting gill box, deals with the short-fiber wools, preparing them for mule or continental ring spinning. A cone set is arranged for a standard 58s quality, preparing this for cap spinning. An open set is designed for crossbred or long wools, these being finally spun on the flyer frame.

Spinning equipment is housed in a room 70x90 ft. and consists in part of two mules, cap, ring, and fly spinning frames; cap and ring twisting frames; doubling; reeling; winding; spooling, and twisting machines. Winding machines, fitted for winding worsted and rayon from skeins and from bobbins or cheeses are installed. Equipment in the warping, dressing, and twisting-in shed includes horizontal warping mills, creels, and Yorkshire warp dressing frame.

A weave shed, the same size as the spinning room, comprises 36 power looms and over 40 hand looms. The power-loom section is representative of a large and varied number of types of looms, and includes tappet and dobby dress-goods looms, heavy-coating looms, single- and double-lift jacquards, special-gage and cross-border jacquards, and heddle and harness mountings for the production of tapestry and plush fabrics. Automatic weaving is also represented. The large number of looms offers ample facility for experimental pattern production in all types of structures and materials, and in addition, provides opportunity for the study, manipulation, tuning, and adjustment of all types of weaving mechanisms. The arrangement of the looms gives scope for the production of a large variety of ordinary and complex structures of fabrics; and special facilities are available for the application of design and color to woven fabrics. Looms are provided for weaving all types of cotton, silk, worsted, woolen, and rayon. All pattern- and box-chain-making apparatus is arranged alongside the looms, and thus provides suitable conditions for experimental weaving.

Testing Laboratory

The textile testing laboratory is equipped with various appliances for testing fibers, yarns, and fabrics. These include yarn reels, twist testers, various types of single-thread and elongation testers, and equipment for testing the strength of yarns in skein form. Machines for determining the tensile and bursting strengths of fabrics are installed.

Extensive tests for industrial organizations are carried out in this department and also in the experimental-materials laboratory, which is equipped for the investigation of the problems concerned with scouring, carbonizing, conditioning, and felting. A power house, which includes a boiler plant and engine room, supplies light and power to the various college buildings.

The staff is composed in the main of practical men with many years of experience in the textile industry. Courses are of university standard, the students being simultaneously trained in some courses for degrees at the London universities, while other courses are drawn up with a view to aiding students to become Associates of the Textile Institute.

Extra Warps in Narrow Fabrics

for Weight, Figure, Strength, and Stitching

By Edwin J. Gibbons

(Concluded from May 9 issue)

FABRICS in which are incorporated an extra warp for figure constitute a great branch of the narrow-fabric industry. The range is from a very few ends forming a simple ornamental figure to numerous figure warps and the most complicated designs. The original warp in this instance is termed the ground warp, and in the majority of cases it interlaces in plain-weave order.

The figure warp may appear wholly on the face of the fabric, being stitched down only enough to secure the figure ends to the ground; it may float on the back of the material, excepting where raised to form isolated figures; or the extra warp ends and ground-warp ends may alternate in forming the ground and figure.

In laying out on point paper designs for extra warp for figure, the same procedure is followed as in extra warp for weight. The extra warp ends are indicated with pale yellow paint, the ground weave is painted in on the ground ends with red paint, and the figure is painted on the figure ends with black paint. Familiarity with this type of design will allow the yellow paint to be dispensed with; and, if desired, the location of the figure ends may then be indicated by a single raiser or a float of two raisers *below* the first pick in the design.

Often, where an extra warp for figure is employed, and sometimes in the case of extra warp for weight, green paint is substituted for the black paint in forming the figure. One reason for the substitution is that in the case of error the green paint may be washed out much more easily than the black paint. The use of green paint is especially preferred where the stitching cannot at once be determined. In such cases the figure is painted in with unbroken or continuous floats of green paint, and the stitching points later indicated with black paint or yellow paint over the green. In the case of jacquard designs in which black paint is used in no other part of the design, this color is preferred to the yellow for indicating the stitching, as it is more easily discerned by the card cutter.

Fig. 10 illustrates two repeats of a design for a simple ornamental figure. The extra warp ends are represented by crosses. The two border ends have displaced regular ground ends and interlace in three-up-one-down order, the sinkers of the weave occurring exactly where sinkers of the regular ground ends would occur. These two ends are shown drawn on separate harnesses. Had there been one less ground end between the two border ends, these ends would have interlaced alike and could have been drawn on one harness. Note that the central-figure ends are not stitched between the successive figures. A great distance between the figures might necessitate some type of stitching. At *B* in Fig. 10 is shown the drawing-in draft; at *C* is shown one repeat of the chain draft.

It is seldom necessary to lay out on point paper simple designs of this nature, provided they can be made on dobby looms or cam looms. With the design and texture in mind, the designer can usually put directly on paper

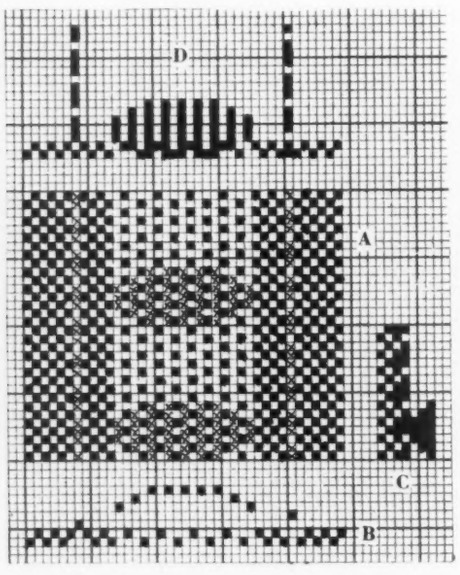


Fig. 10. Simple ornamental figure

Fig. 11. Ornamental trimming made according to Fig. 10

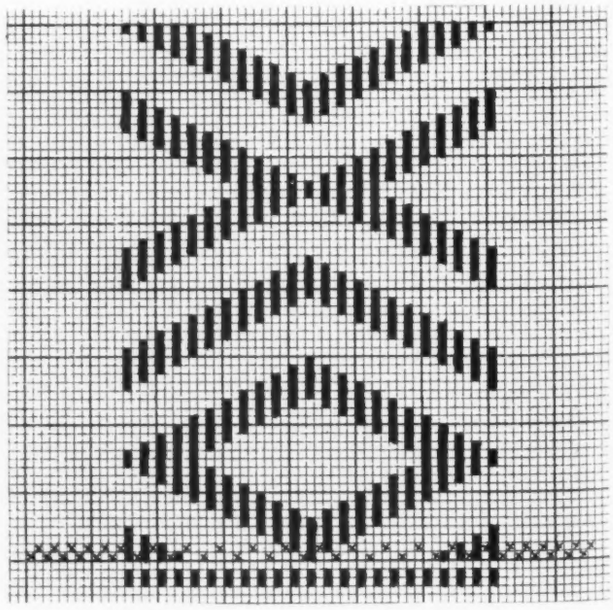


Fig. 12. Extra warp for figure

Fig. 13. Woven according to design similar to Fig. 12

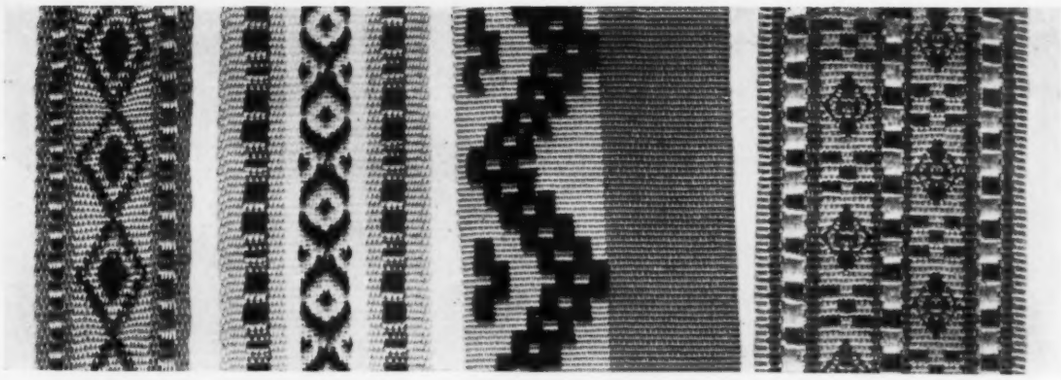


Fig. 14. More complicated designs

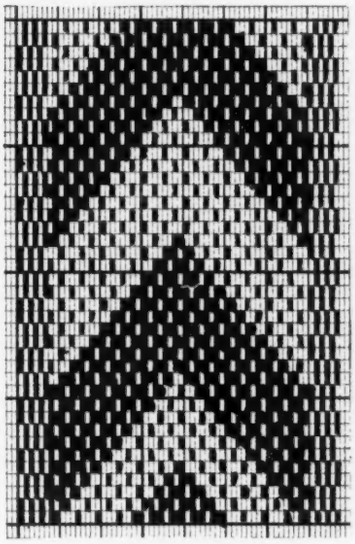


Fig. 15. Extra warp alternates with ground warp for ground and figure

Fig. 16. Woven idea of Fig. 15

Fig. 17. Woven on principle of Fig. 16

Fig. 18. Two extra warps for figure

the necessary drawing-in draft and chain draft. In the case of jacquard patterns, however, especially those with plain-weave grounds, the interlacing of the figure ends will have to be painted in, but only the first repeat of the ground weave need be shown. See *D* in Fig. 10. The necessity for painting in ground weaves other than the plain weave depends upon the card-cutter's proficiency.

Fig. 11 illustrates an ornamental trimming made according to the design shown in Fig. 10. Fig. 12 shows another simple design employing an extra warp for figure. Only one repeat of the ground weave, which is plain, is shown, and is represented by crosses. The locations of the extra warp ends are indicated below the design. Fig. 13 illustrates a narrow fabric woven according to a design similar to that shown in Fig. 12. Fig. 14 illustrates examples of more complicated designs employing extra warp for figure.

Fig. 15 shows a design in which the extra warp alternates with the ground warp in forming the ground and figure. Each system of warp ends, after floating on the back for a number of picks, then on the face for a number of picks, interlaces in plain-weave order while the other system of warp ends floats successively on the back and face.

Fig. 16 illustrates a fabric interlaced according to the design shown in Fig. 15.

Fig. 17 illustrates a fabric constructed similarly to that shown in Fig. 16, but of more complicated design. One warp is slate, one is black. While the slate ends are weaving as figure, the black ends are interlacing in plain-weave order beneath; and while the black ends are weaving as figure, the slate ends are interlacing in plain-weave order beneath. Interlacing in plain-weave order beneath the figure lends firmness to the material and tends to throw the figure more to the face, or places it in relief. Where the plain weave is visible, it is formed entirely with the slate ends, the black ends in the meantime floating on the back.

In laying out on point paper designs employing two extra warps for figure, and in which the arrangement is one face-warp end, two figure-warp ends (one end from each extra warp), the ends from the different figure warps may be distinguished by the use of yellow paint of different depths; for instance, lemon yellow for one warp and Indian yellow for the other. When yellow paint is not used, the arrangement of the ends may be

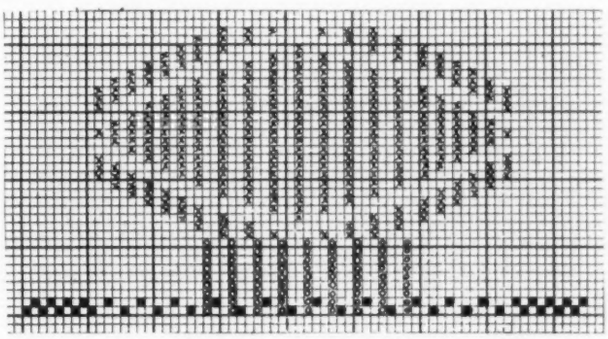


Fig. 19. Design for Fig. 18.

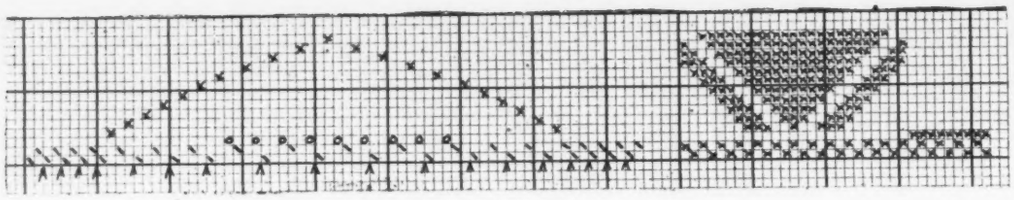


Fig. 20. Drawing-in and chain drafts for Fig. 19

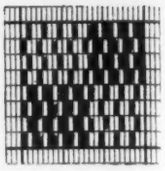


Fig. 22. Combining of two weaves

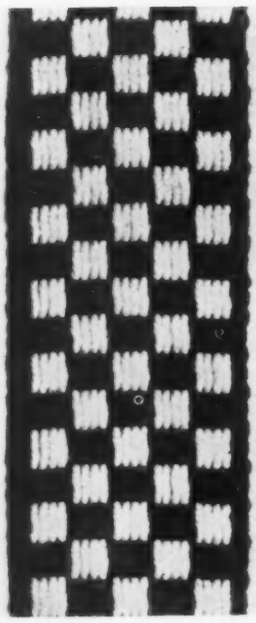


Fig. 21. Fine warp added for firmness

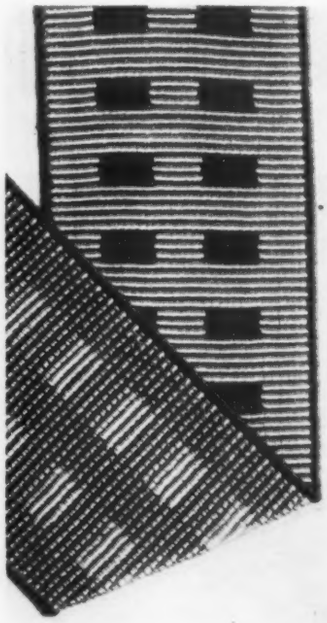


Fig. 23. Extra warp provided for stitching

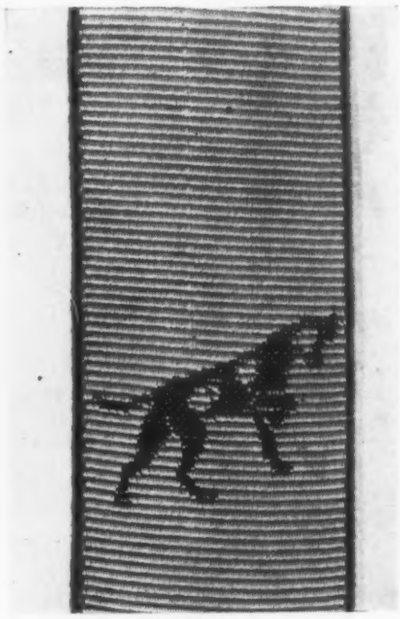


Fig. 25. Long filling floats stitched down by extra warp

indicated below the first pick in the design by the use of different color paints.

Fig. 18 illustrates a simple ornamental trimming in which two extra warps for figure are employed—one of silk and one of mercerized; and Fig. 19 demonstrates the manner of laying out the design for such a treatment. The ground warp is represented by full blocks; one extra warp, by circles; and the other extra warp, by crosses. This pattern requires but fourteen harnesses; therefore it may be woven on a dobby loom.

Fig. 20 shows the manner of laying out the drawing-in draft and the chain draft for the design shown in Fig. 19, when it is desired that it be made on a dobby loom.

In the employment of loose weaves, such as basket and rib weaves, it is sometimes desirable to strengthen the fabric by the addition of an extra warp. This warp may interlace in almost any order; but, in order that the greatest benefit may be derived, a close weave should be used. For this reason the plain weave and small twills are most commonly used.

Fig. 21 illustrates a fabric constructed of a very heavy yarn, in which the desired effect is a basket weave with contrasting colors in the blocks of warp and filling. With coarse yarn, however, it was found impossible to hold the material in shape. The solution was the addition of an extra warp of fine yarns interlacing in plain-weave order. This provided firmness without marring the effect. Fig. 22 shows the method of combining the two weaves.

Fig. 23 illustrates a warp-rib fabric ornamented with small blocks of figure formed by a filling of contrasting color. To preserve the solid color of the figures and avoid long filling floats, an extra warp of fine yarns of the same color as the filling was provided for stitching. When not used for stitching the extra warp is bound to the back of the fabric by a loose order of interlacing; viz., the one-up-seven-down broken warp rib. The warp arrangement in this fabric is three ground ends, one stitching end.

Fig. 24 shows a design similar to that used to produce the effect shown in Fig. 23. Note that the second and fourth picks in each shed are arbitrarily considered as face picks, and that the first and third picks are considered as back picks. There is no particular reason for this choice. Note also that each time the extra (stitching) warp is raised over a "face" pick it is also raised over the preceding and succeeding "back" picks since ends are likely to exert a "pull" on the filling and thus separate adjoining figure picks and mar the effect.

Fig. 25 illustrates a fabric ornamented with a more elaborate figure, in which the long filling floats are stitched down by an extra warp of fine yarns.

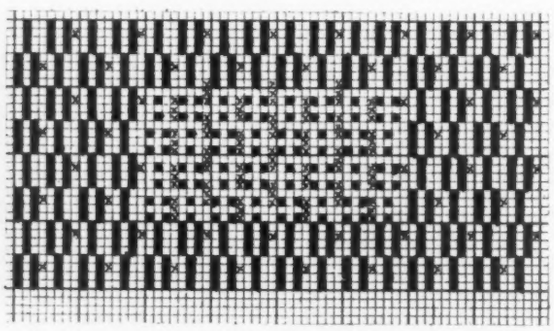


Fig. 24. Design of the type required for Fig. 23

This article is the tenth of a series on the design and construction of narrow fabrics by Edwin J. Gibbons, instructor in textile design at Samuel Slater School, Pawtucket, R. I. Mr. Gibbons reserves all rights. Previous articles, some in more than one installment, appeared Nov. 16 and Dec. 28, 1929; Jan. 25, March 1, April 5 and 12, June 21, Aug. 2 and 30, and Nov. 15, 1930; and Feb. 14, 1931.

Questions... *and* Answers

Sizing Warps for Sheeting

Technical Editor:

Can you give us a formula and method for sizing 20/1s, 1,400 ends, 800-yd. chain warps, which are used for sheetings? (7532)

A chain warp is one where the warp is doubled up once or twice, or where the warp has been linked by making an exaggerated crochet loop. Neither of these forms is suitable for a warp which is to be made into a sheeting fabric. For a sheeting fabric made from 21s yarn the warp should be sized in a cotton slasher.

The modern machines are equipped with time and temperature controls, which cook the size a definite length of time at the same temperature, keep the supply of size at a constant temperature, deliver it to the slasher at a uniform temperature, and keep the size box on the slasher at a uniform temperature.

A typical formula to make 140 gal. of finished size is: 160 lb. of 40° fluidity starch, 10 lb. of vegetable gum, and 20 lb. of softener. The starch should be added to the jacketed kettle and cold water added. This mixture is stirred cold for 20 min., then brought to a boil, and boiled one hour. The softener and gum are added and cooked in the size for 20 min. more. The size is run into the slasher and kept at a temperature of 197° F.

The pressure rollers on the slasher are set so that the size is forced into the warp and good penetration is obtained. The temperature of the dryer and the speed with which the warp passes through the size should be such that the warp is dryed with about 6% moisture remaining in it.

The warp will absorb sufficient size to increase its weight about 9%; that is to say, the net weight of the warp on the beam is about 1,333 lb. unsized, and about 1,453 lb. after sizing, figured on the bone-dry basis. One of these warps will take about 130 gal. of size. Theoretically the warp will take up about 12% of the dry ingredients used, but the loss is about 25% of that. Some mills finishing their own cloth use less size, only about 7%, but those selling it in the gray use about 9%. If the fabric is low-sley work, the amount of gum and softener can be reduced somewhat, and there will be no danger of chafing of the warp; but for the usual high sley-sheeting, no reduction can be made.

If the warp sheds in the loom, it is safe to assume that the size was not cooked long enough, or sufficient penetration of the size was not obtained. In this case, increase the pressure on the squeeze rollers, and cook the size a half-hour longer.

▼

Twists for Cotton Sewing Thread

Technical Editor:

I should appreciate your giving me the best methods for making cable- or hawser-twist yarns for thread trade. Is it necessary to condition the single yarn? What twist multipliers are best for single-ply and cable yarns. (7514)

Cable- or hawser-twist yarns for the thread trade are generally manufactured in six-cord only. Four-cord cable twist is made but seldom in this country. The two-, three-, and four-ply threads are straight laid or single throw, being twisted in one operation, whereas a cable or hawser twist has two twisting operations. For six-cord sewing, single yarn is spun regular twist with a spinning standard twist of three times the square root of the count for the coarser numbers, if a long, staple American cotton is used. The twist is reduced as the count advances, because a longer staple is used for the medium and fine counts—perhaps a second-grade Sak for the medium counts with a twist multiplier of 2.90 and a first-grade Sak for the fine numbers with a multiplier of 2.75.

Conditioning of single yarn is not necessary, as the two single ends are doubled and then wet-twisted in the same direction as the single twist. This is called twist on twist.

The two plies are then doubled three ends up, and this work is generally done on a doubling frame of the English type, doubling on to bobbins under tension to prevent yarn kinking. The twisting which follows is in the opposite direction. This is right twist, but is called regular twist in six-cord twisting.

Twist multipliers are not used in specifying the twist of six-cord cable twist. Each number has its own first and second twist, and these do not conform to standards. The reason is not quite clear, but the fact remains nevertheless.

▼

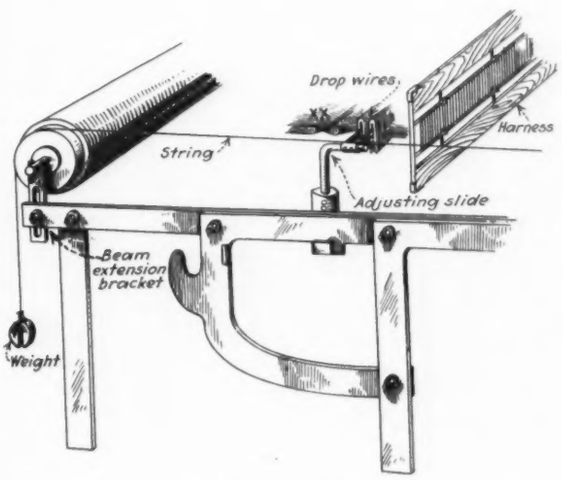
Twisting-In Warps with Drop Wires in Place

Technical Editor:

I understand that there is a practical way of taking chiffon or georgette harness out of a loom for twisting with the drop wires remaining in place on each and during the twisting process. This avoids dropping wires on every warp that is started up. I should appreciate your letting me know the details of this method if you know of it. (7550)

We do not recommend removing hard-twist harness from the looms with drop wires in place so as to handle it in the twisting frame, although it can be accomplished. By tying the bars together and blocking the contact drop-wire bars to keep the wires from pinching the warp threads in the bottom bars, the warp stop motion can be tied up against the harness and removed from the loom. In doing this, the heading should be at least a half yard long in front so that the twister will not need to draw up the heading to fasten into the roll at the twisting frame.

In saving time replacing new warps, providing you desire to leave on the drop wires, twist the new warp right



Arrangement for twisting-in warp with drop wires in place

in the loom. There have been instances in which heavy romaines ran year after year in the same loom without the harness or drop wires being removed. This method is as follows:

After the warp has been completed, run it up as far as possible to the whip-roll to save silk. Next remove the lease rods and secure a new lease or cross one at a time as necessary for the twister. On the first cross, place in a flat stick and run back to the drop wires, there twisting it on edge to form a large opening. Make a like opening on the back side of the drop wires where the first lease rod is placed in. Next place in the second rod in the same manner to form a twister cross in back of the drop wires. Slide the drop wires as far as possible up next to the harness by the adjustment slides. Fasten the lease rods tight and let the twister cut off the sections for his twist.

Place in the new warp on top of the stands as far back as the last extension will allow, so as to give the twister plenty of elbow room. Weight the new warp down with the goose-neck-hook type of weights. After the warp is twisted, both leases will be in back of the drop wires. Pull the first rod out next to the drop wires, leaving the second rod up against the drop wires within an inch to help separate the twist. The twist can now be pulled through the drop wires, harness, and reed up to the breast beam. Slide the drop-wire device back to the original position, place the new warp down below the whip-roll, and start up the warp.

The twister should be taught this method of twisting in hard-twist warps, and when a warp runs out he can do all the necessary required actions without the help of a loomfixer, until the newly twisted-in warp is ready to be placed down in the brackets below the whip-roll. After this the fixer may be called to start up the warp. The maximum time from start to finish should not be over three hours for an 80-square georgette.

▼

Streaks in Rayon Underwear Fabric

Technical Editor:

Under separate cover I am sending you samples of rayon knitted fabric from Wildman machines. You will note that these samples show streaks or cloudiness, and our knitter does not seem to be able to get away from this. I hope you can give us some information which will help us. (7477)

We find the fabric to contain pronounced vertical streaks. This is clearly a structural defect and arises from lack of uniform tension on the stitches as they are being formed. A careful check should be made to determine whether all the sinkers slide under the same tension in their slots. Any slight difference in tension resulting from waste or gum in the slots or difference in wear of sinkers or cams will cause variation in the fabric.

Lack of uniformity in the needles is also a possible source of this difficulty. The needle cylinders should be in perfect condition with all the cylinder walls in alignment. If some of the needles are bent more than others so that they slide under more tension, they will invariably form longer stitches. The same applies to the jacks. Perfect alignment of needles, uniform tension in the slots of the cylinder, uniform tension on all sinkers, and uniformity of sinkers so far as wear or age goes, will show an improvement in this fabric. The stitch cams should be ground so that they act on the butt close to the needle cylinder.

▼

Hosiery Shows Change in Shade

Technical Editor:

We are enclosing herewith one stocking consisting of eight-thread pure silk fifteen turns per inch. This stocking you will note contains different shades in the same stocking. You will also note that a different thread was tied on where this thread changes. We wonder if you can tell us what caused the different shades in stocking. This silk was soaked with regular soaking oil and soap and was tinted light orange, but the tint was very faint. (7529)

The condition of the sample submitted leads us to believe that the difference in shade was caused by employing two different lots of silk in producing the stocking. The same trouble can be produced by allowing a press-off from the machine to lie around for a few days and oxidizing into a yellow tone before topping it back on the machine and finishing out the pattern. This procedure produces a condition of one part of the pattern being made out of freshly wound silk, and the other part of wound silk of sufficient age to be yellow by oxidation.

In the sample in question, however, we find the difference in shade in the leg and also a difference in shade between the foot and leg. We believe that the top of the leg and the foot were made of the same lot of silk and the lower part of the leg was made from a different lot. It will be found by folding down the top of the leg to join with the foot that the color in the top of leg and in the foot is about the same. A slight difference in shade can be noted by this comparison, but the change of tone in the foot has been greatly magnified on account of the foot having been knit much tighter than the leg. We find the leg construction to run about 40 courses per inch and the foot construction 43 courses. This much difference in fabric construction alone will produce some difference in shade. This is shown by looking at the leg fabric at the point where the color change and thread change occur. It will be noted that union of color is better where the stitch construction is the same.

We might add in this connection that high-twist silk, and we consider fifteen turns per inch high twist for eight-thread, has to be handled with more care than ordinary hosiery tram of two to five turns per inch if difference in shade is to be overcome. In the first place, high-twist silk requires more soaking and softening to knit satisfactorily, and is much more difficult to boil-off properly. Therefore you should be careful that the same percentage of soaking and coning solutions used on the leg are used on the foot under the same conditions. In this way, when the actual boiling-off operation takes place, one part of the fabric will not differ from the other on account of having had more or less softening or breaking down of the gum. This is not said as an indictment against high-twist silk, but merely to point out that high-twist silk will have to be handled at every point from the knitting machine to the dyeing machine with more care than tram silk if best results are obtained in the union of shade and fabric.

We might further point out that it is highly important to produce as far as possible a complete stocking from the same lot of silk whether ordinary tram or high-twist silk be employed. Likewise the footing operation should closely follow the legging operation so that aging and oxidation of the entire stocking may take place uniformly before the goods are dyed.

▼

Removing Black Stains From Cotton Lace

Technical Editor:

I am enclosing a sample of cotton net in the gray. I am having trouble in removing the black stains or graphite from cotton nets and cotton lace. Can you give me the name of some solvent which will remove this black stain? At present I am cleaning the nets and laces with soap and soda ash at a boil, then washing and bleaching. I next have to hand-scrub the black lines with a brush and soap, and finally wash the fabric again. (7542)

The method of removal is apparently more important than the product employed in removing graphite stains from cotton lace. The temperature of the water is probably the most important factor in the removal of graphite. If the water be too hot, the graphite will be loosened, but will float all over the machines and stain the goods wherever it hits them. The following method has proved satisfactory in a number of lace-curtain plants.

The first machine used is the Tom-Tom. The curtain material is put through in 100-lb. lots. The machine is filled to the water level with cold water. Into this is poured three pails (about

9 gal.) of a solvent scouring soap. These are liquid soaps with a solvent, such as acetone, added. The goods are then entered and worked in this machine for six or seven passes, or about 15 min. After this treatment the pieces are submerged in the liquid and allowed to remain overnight. Most of the graphite will be loosened, but it will not separate from the solution as long as the solution is cold. Heating the bath interferes with the removal.

The following morning the goods are run through the machine for several minutes. The machine is drained, filled to the proper level with warm water (120-130°F.); and about 15 lb. of trisodium phosphate and one or two pails of olive-oil soap (8 oz. to the gal.) are added. The bath is heated to 140°F., and the goods are scoured for 30 to 45 min. The liquor in this machine is saved, and the curtain material is rinsed in another machine. The machine containing the soap and phosphate is used to scour another lot, freshening it by the addition of three pails of solvent. Inasmuch as the lot is not entered to soak overnight until in the afternoon, the bath has a chance to cool. The solvent soap described above must not be added when the bath is hot, or the solvent will evaporate.

Cotton-rayon material is scoured in this way and is ready to be bleached and dyed. All-cotton lace may be kier boiled if necessary after the scouring described above. The sample we are returning was scoured as outlined in this article; it was not boiled or bleached.

There are times when some bad spots must be removed by hand after machine scouring has been completed, but these cases are rare. When it is necessary to scour some bad place by hand, all that need be done is to make up a cold solvent solution, using about half solvent and half water. Work the goods in this until they are wet out, continue working by hand until a good lather results, and then rinse the fabric. Any of the larger manufacturers of textile soaps will be glad to furnish a solvent soap.

▼

Bleaching Hosiery with Sodium Hypochlorite

Technical Editor:

Will you be good enough to give us formula for bleaching with liquid hypochlorite of soda containing 13 to 15% chlorine. Give percentage, temperature, and time required, and also the percentage of acid for neutralizing. We are especially interested in the bleaching of hosiery which contains rayon, Celanese, and mercerized cotton. (7525)

For bleaching hosiery containing mercerized cotton or rayon, sodium hypochlorite solution is prepared by diluting the strong solution containing 13 to 15% of chlorine to a strength of 2 to 3° Tw. The goods are treated in this solution for 30 to 60 min. To accelerate the bleaching action, some bleachers use a lukewarm bath (95°F). Others prefer to bleach at a temperature of 65 to 70° F. The goods are removed from the bleaching solution, washed, soured cold for about 20 min. with sulfuric or hydrochloric acid at a strength of ½° Tw., washed, antichlored with sodium bisulfite (1 lb. to 100 gal.), and again washed. Often, the souring operation with acid is eliminated, and in this case a larger amount of sodium bisulfite is required to neutralize the chlorine left in the hosiery. To soften the bleached material, it is given a soaping at 100° F., using about 2% of a good neutral soap. If a blue-white is desired, a small amount of bleacher's blue is added to the soap solution.

Fabrics containing acetate yarn are treated in a similar manner, although it is usually recommended that the sodium hypochlorite solution be made neutral or slightly acid before using. A strength of ¼° Tw. is recommended; but when necessary to produce a good bleach, considerably stronger solutions may be used.

▼

Cleaning Dye Kettles

Technical Editor:

We wish to dye rayon yarn with direct dyes in a wooden kettle which has been used for acid dyeing of woolen yarn. Will you kindly advise us if there is any information regarding the neutralizing of these kettles. If so, we would appreciate it if you will send us this data. (7530)

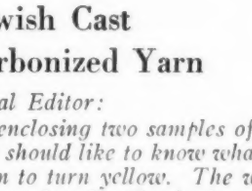
Since acid dyes have little or no affinity for wood, there is not likely to be much color absorbed by the kettle, neither will the acid be taken up to any great extent. Furthermore, the acid dyes will seldom stain rayon. We believe, therefore, that you need only to boil out the kettles with some soda ash and then wash with water.

▼

Yellowish Cast in Carbonized Yarn

Technical Editor:

I am enclosing two samples of woolen yarn. I should like to know what causes this yarn to turn yellow. The wool has been scoured and carbonized and picked with olive oil, so that I feel sure it is not the oil. These two samples are from the same lot or batch of wool, and one is much yellower than the other. Both samples have also been steamed. (7540)



Inquiries should give the fullest information possible. In the case of damage to material, a sample should be sent. No consideration is given anonymous inquiries; and we do not undertake routine analyses of yarn or fabric, or investigation involving unusual expense.

The two samples of woolen yarn submitted were carefully examined and treated to remove all natural and conditioning oils. The two samples were then compared, and it was noted that there still remained a difference in color. This excludes the possibility that the olive oil was at fault. There is a possibility that the trouble may arise from the steaming. We believe, however, that the variation in color is due to the carbonizing and subsequent processes. It is suggested that the wool be tested before drying and after neutralizing to ascertain that it contains no alkali. Even a trace of alkali dried in wool will cause it to acquire a yellow cast.

▼

Uneven Courses in Full-Fashioned Stocking

Technical Editor:

We are enclosing a full-fashioned stocking, which you will note is very uneven from the top to almost half way down the leg. We should like to have your opinion as to what causes this unevenness. (7539)

This defect is apparently due to uneven tension on the delivery of the silk from the cone. The most common cause for this uneven tension is the silk aging too long on the cone in a wet state, resulting in the gum becoming soft and the threads sticking together. In backwound yarn on felt-covered cones, this condition is at its worst on the last several layers nearest to the felt. Other possible causes include a groove in a porcelain eye or a split or cut groove in a carrier tube.

▼

Dyeing Mottled Flannel

Technical Editor:

I should like to obtain some information on the dyeing and finishing of mottled flannel. I am enclosing a sample of the goods, and you will see that the warp is well dyed, while the filling is hardly penetrated. Since the filling seems to be soft spun, I do not understand why it has not picked up more color than the sample shows. It is possible that the warp was dyed previously and woven with gray filling, or perhaps the warp was tinted in the slashers. What I should like is your opinion on the best method of duplicating sample. (7531)

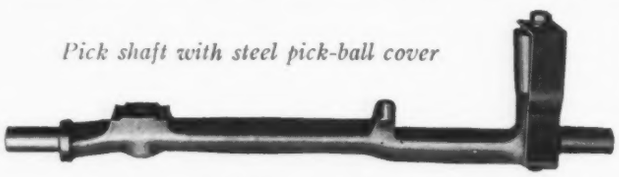
In duplicating the sample in question, we believe that the best method to use is to dye the warp in the slasher, using a dye which is not too fast to washing. After the goods are woven, a single pass through a water mangle or a padder with the color box filled with hot water, will bleed some of the color off the warp and tint the filling in about the same way as the sample you submitted. You will, of course, have to experiment some to get the conditions just right.

New Machinery *and* Processes

Improved Pick Shaft

AN improved loom part recently brought out by Draper Corp., Hopedale, Mass., is a pick shaft of gray iron with a steel pick-ball cover. In the construction of this pick shaft a new mixture of iron and alloys has been used to give strength and durability and a new cross-section employed to add further to the strength. The steel pick-ball cover is firmly fastened in place by an all-the-way-through bolt with check nut, so that it will not get loose. Additional strength is said to prevent breakage. The cover is lighter than in the older model, thus reducing vibration; and thinner, giving better clearance over the loom-side. The old pick ball is used. New pick arms may be supplied if desired. These also are made of the improved gray iron, and are so designed that one casting replaces both hands of the old pick arm.

Pick shaft with steel pick-ball cover



Asbestos Filtering Compound

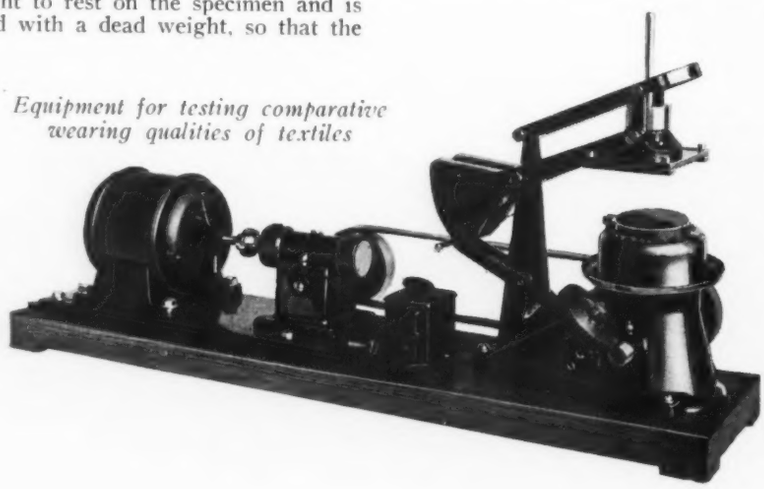
FULL-FLOATING asbestos for use in gravity filters is a recent development announced by Alsop Engineering Corp., 39 West 60th St., New York. It is stated that this product is compounded in an entirely different manner from that hitherto in use. Full-floating asbestos finds applicatioon in filtering of a wide variety of liquors, and is expected to find use in the textile industry for the treatment of various solutions which must be filtered or clarified.

Abrasion Tester

COMPARATIVE wearing qualities of textile fabrics may be determined with the Model 1530 Schopper abrasion tester announced recently by H. Z. Schniewind, 314 Broadway, New York. This instrument subjects the fabric to abrasion in different directions and, with interruptions, on different spots, so that the fibers may rise from time to time. The fabric is subjected to a combined rotary and rolling motion, whereby it is brought against a rubbing plate under a pressure which may be adjusted according to the nature of the goods under test. The abrasion is measured not only by visual comparison, but by determining the loss of weight after a certain number of revolutions, the latter being indicated upon a dial. It is stated that the machine is suitable for testing both heavy and light materials, duplicating the varied contacts from the various angles and directions to which fabrics are subjected in actual wear. The tester is equipped with an electric motor, and rheostat to maintain a constant operating speed irrespective of the load on the specimen.

In operation, the test specimen is cut to a standard size with the aid of a templet supplied with the equipment. It is then fastened to the testing head by means of a ring clamp. An abrasive is brought to rest on the specimen and is loaded with a dead weight, so that the abrasion takes place under a constant load. The clamping head is revolved and given a standard number of revolutions under abrasion. The specimen is weighed before and after abrasion to determine the loss in weight caused by abrasion. In this way the wearing quality of the specimen is measured. The abrasion may be effected either by an emery cloth or by a steel grater. A clamp for the emery cloth is readily interchangeable with the steel grater.

Equipment for testing comparative wearing qualities of textiles

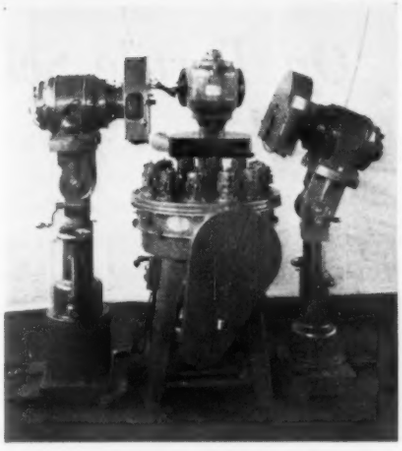


Automatic Polishing and Buffing Machine

ANNOUNCEMENT of a new automatic polishing and buffing machine which is expected to find considerable application in the textile industry has been made by C. I. Packer Tool & Die Co., Meriden, Conn. The equipment is designed to handle any article made of metal or molded material with a diameter of 7½ in. or less. It is stated that not only can polishing and buffing be done more uniformly with this automatic machine, thus reducing rejections to a minimum, but also that production is greatly increased.

The machine is composed of a table on which the work is placed for finishing, three finishing wheels on adjustable heads, run by ball-bearing motors. The electrical control consists of a starting switch, four-speed controller box, snap switches for each motor and push-button switch for emergency starting and stopping. The work table rotates or indexes intermittently and has twelve work spindles. On each spindle is an automatic expansion chuck which holds the work being polished or buffed. As the table indexes and the spindles advance to a position directly in front of the operator, they stop revolving and the jaws of the chuck holding the work, contract automatically.

This action controls three spindles simultaneously, thus allowing the operator ample time for removing the work and reloading. Expansion of the chuck jaws occurs automatically, just before the work makes contact with the first wheel, and holds the work securely throughout the polishing and buffing operations. The period of dwell, while the work is in contact with wheels, is



Automatic machine for polishing and buffing metallic and molded articles

determined by the nature of the work and finish required. Jaws hold the work on the expansion chucks and are made to fit the work to be finished. They are fastened to the main jaw of the chuck by screws and dowel pins. Removing and assembling these jaws can be done quickly.

The three finishing wheels operate simultaneously in polishing and buffing the work. They and the motors which operate them are on upright jacks which can be adjusted, so that the wheels can be placed in any desired position. The jacks are so built that they can be moved up and down, forward and back, making a flexible arrangement for each wheel unit.

The table is operated by a multi-speed motor, which allows the table revolving with intermittent action, to be run at four separate speeds. Three motors operate the finishing wheels and each can be controlled separately by switch. The gear mechanism which revolves the table top to which the chucks are fastened are directly underneath the top and run in a dustproof oil reservoir. Noise is eliminated so far as possible.

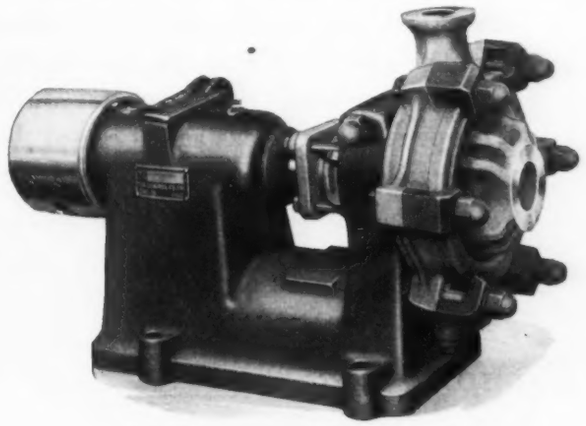
Corrosion-Resisting Centrifugal Pump

TWO new corrosion-resisting centrifugal pumps, Nos. 40 and 50, have been brought out by the Duriron Co., Inc., Dayton, Ohio. Suggested uses for these pumps in the textile industry are for unloading tank cars, thus eliminating the hazard of bursting the tank car with air pressure; circulating tin tetrachloride in silk plants: transferring solutions in bleaching and dyeing plants; clearing sumps automatically; pumping liquids on filter press work; and similar applications.

Duriron pump No. 40 is especially designed to fill a need in the process industries for an inexpensive pump for handling corrosive solutions having total heads up to 50 ft. and for capacities not exceeding 90 gal. per min.

It has a 2-in. suction and a 1½-in. discharge. Both openings are arranged for U. S. standard low-pressure flange connections and can be connected to Duriron, lead or threaded pipe by the use of standard companion flanges. All parts that come in contact with the material handled are made of acid-proof Duriron. The No. 50 pump is of the same construction as the No. 40, with the addition of self-priming parts and a 2-in. discharge. Priming is unnecessary even though the pump is located above the supply, and foot valves are not needed. A strainer in the suction chamber prevents entry of foreign material which might affect the operation of the pump, and is readily removed for cleaning.

Either pump can be equipped with a 5½-in. or a 7-in. impeller, widening the variety of uses. With a direct-motor drive, the speed being constant, the smaller impeller oftentimes will meet requirements with a consequent lower power consumption. For belt-driven pumps, it is preferable to use the larger impeller and reduce the operating speed, saving mechanical wear on the bearings. The high capacity with a 7-in. impeller is 85 gal. per min. to a 10-ft. head.



Belt-driven centrifugal pump for handling corrosive materials

New Dyestuffs

Ponsol Brilliant Violet 4R Paste, a vat color which produces bright bluish shades of violet, has been announced by E. I. du Pont de Nemours & Co., Wilmington, Del. Although this color is of greatest value in printing, it may also be used for dyeing cotton and silk. It is redder than Ponsol Brilliant Violet RR Paste and equally as bright. The new color is said to be exceptionally fast to practically all of the most important destructive agents, and to show good fastness to light. The paste is printed best by the pigment method. Due to its fastness to washing and water, it is recommended for goods which undergo repeated launderings.

Newport Light Fast Yellow RL is a direct color, brought out by Newport Chemical Works, Inc., Passaic, N. J. The excellent fastness to light, solubility, leveling, and penetrating properties of this color make it of particular interest for dyeing cotton, rayon, plushes, and upholstery materials, either as a self-color for pure yellows or in combination with other fast-to-light direct colors for the production of bright greens, oranges, tans, etc. In silk and cotton hosiery dyeing, it leaves the silk clean, and is of interest as a shading color for the cotton. In the presence of soap, the silk is left white. In mixed materials of cotton and wool, the latter fiber is dyed much weaker than the cotton. Mixtures of cotton and rayon are dyed somewhat weaker on the cotton. It discharges to a pure white.

Two new homogeneous Indigosol dyestuffs, Indigosol Printing Blue IGG and Indigosol Printing Blue IB, intended for textile printing, have been announced recently. Both brands are said to be considerably faster than Indigosol O4B, O6B and AZG, thus filling a gap in the range of the fast Indigosols. Both colors are readily soluble in water, and are best printed or padded in accordance with the chlorate steaming process, along with ammonium sulfocyanide or ammonium oxalate. They may, however, be fixed by the usual nitrite process, by developing cold or hot in a sulfuric acid bath, or by making use of a simplified nitrite or bichromate process consisting in passing the goods for 8 seconds through a roller-box or for 1 to 2 seconds with a subsequent air-passage. Indigosol Printing Blue IGG is much redder than Indigosol AZG and slightly redder than Indigosol O6B; Indigosol Printing Blue IB yields clearer and slightly greener shades than Indigosol HB. The new brands are said to be of good fastness to light and of very good fastness to soaping and chlorine. They are also well suited for resist styles; and may be discharged to a pure white either by means of the acetate resist or the thiosulfate and Rongalite CL resist. In addition, they may be used for colored chlorate discharges, as well as for resists under aniline black, Variamine Blue B, and vat colors. The products are offered by Carbic Color & Chemical Co., Inc., 451-453 Washington St., New York, importers for Durand & Huguenin S.A., and by General Dyestuffs Corp., 230 Fifth Ave., New York, distributors for I. G. Farbenindustrie Aktiengesellschaft.

Overseers' Round-Table

THIS department offers a new subject for discussion each week and gives readers' comments on problems introduced during previous weeks. The subject which was opened four weeks ago is closed this week and a summary of contributed ideas is given on opposite page

◆

Group Insurance

Editor, Overseers' Round-Table:

I AM fully convinced that group insurance, where the mill pays part of the premium, is one of the best assets any mill can have.

Anyone familiar with mill employees knows that they save money very slowly and when the head of a family, or a member, dies the death usually leaves the family in bad circumstances. Then the usual thing is to pass the hat among fellow workers for donations to aid the bereaved. All this expense would have been taken care of if the departed had been insured.

Another thing insurance makes possible is a contented feeling that one's family will be taken care of in case of an accident. Every man or woman who has a family dependent has the dread of what would happen to the family in the event of the death of the provider. In such a state of mind no one can feel free, nor can they get that happiness from life which is rightfully theirs.

B. T. GLADDEN

Private Offices for Overseers

Editor, Overseers' Round-Table:

I AM willing to gamble that this question will be answered 99% in favor of private offices for overseers unless some of us old-timers get busy and write our honest feelings.

I, for one, would not have an office in the mill for a single overseer. If a testing department is necessary, or a laboratory for the dye-house, why not build such a room in the rear of the manager's office where the proper person in charge could do his work without being bothered by any overseers, as overseers do not always talk shop while the baseball or horse racing season is in full swing.

Recently I had the pleasure of going through a certain plant of 60,000 spindles and 1,400 looms. As I entered the card room you could readily see that the overseer was on the job. Every roving can was in place, roving trucks lined up, alleys clean, humidifier heads working properly and lights out where not needed. In the spinning department I saw the creels nicely packed, the rolls picked and clean, etc. The spooling department was in the same good condition and in the weaving department it was a wonderful sight to see alley after alley of looms on the tight pulley. The help seemed satisfied and contented. There is not one overseer's office in this mill and there have been none for the last three years. There never will be again as past experience with offices was not a success. It has been proved that better production at a much lower cost can be obtained with the overseer's desk in the middle of the room than with an office.

W. D. CRAWFORD.

Editor, Overseers' Round-Table:

BY ALL means give the overseers private offices even though there is barely room for a table and chair. An overseer leaning against a breaker-card or a spinning frame trying to think out the solution to an onerous problem

On Textile School St

"IT WON'T be so very long before the schools are out," Superintendent Chase observed, "and I have a couple of letters here which remind me that it's about time we settle a problem. These letters I speak of are from boys in textile school and they want to know whether I will give them jobs here for their summer vacation. They have another year of school and they want to get some practical experience. Since you overseers would be much more in contact with such boys than I would I think that you should decide whether I should let them come to work here. What should our policy be in employing such workers?"

"I don't mean to be a tough bird," Bill spoke up, "but it would please me if you wrote these boys that there was nothing doing and if you said the same thing to any others who might come along. You take a lad coming in that way and either one of two things happens. If you chance to like the lad you may waste a lot of your time on him trying to teach him something. The difficulty is that just as he is beginning to show some signs of being some use he has to go back to school. On the other hand you may not want to bother trying to teach the lad anything. In this case it doesn't do him any good and as far as you are concerned the whole thing is an annoyance. You all know how much it costs to train help. I do not think the company is justified in going to this expense where no benefit whatever is derived from the training."

"Then there is the effect on the help to be considered," Bill continued. "If the boy tries to do a regular job the rest of the help have to help him along and tell him what to do and that sort of thing gets pretty tiresome on hot days. Or, if the lad sort of hangs around with the overseer, the rest of the help talk of favoritism and get restless. No sir, boss, I'd be right pleased if I didn't have any young lads getting tangled up in my feet this summer."

"Bill seems to be able to think of the darndest arguments," Pete came back. "Why I didn't know that there was anyone who didn't believe in giving

Students

textile school students summer jobs. I won't bother to point out how hard-hearted Bill's attitude is and how things would bog down if everyone thought of cash before extending a helping hand, because I can take his own argument about the expense involved and prove that he is goofy. I'm perfectly willing to admit that it costs money to train anyone so that they are worth something to the company, but just think of the chance an overseer has to brush up on his knowledge. Here is a lad in school just full and busting with information. The overseer who is wide awake can pick up a lot from textile school students and what he picks up will more than repay for any time spent in training the boy. Then again a boy will often work in a certain mill a few summers and then work there permanently when he has finished school. In these cases the mill certainly gets the benefits of the early training. I think that we should do everything we can to help the youngsters learn. Quite outside of the human side it is to our advantage to encourage them."

◆

Do *you* think that it is wise to employ textile school students and others for the summer vacation?

Overseers and others are invited to discuss this and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

appears to be merely loafing, and invariably he will be interrupted and his train of thought broken and lost. In his private office the casual visitor will hesitate to disturb him.

While resting his weary legs after a round of his department the overseer will be doing creative thinking in his office; getting double for himself through exercise for the mind and rest for the body. Overseers with private offices will be striving to improve their departments both in present efficiency and through developments.

E. E. Gagnon
Mechanical Supt., U. S. Asbestos Division.

Editor, Overseers' Round-Table:

I believe with Bill that every overseer should have some kind of a hole in the wall to get away from the noise, so he can do his thinking and keep his records.

There are times when an overseer has things on his mind that he cannot figure out while walking around the department or sitting at a desk in the center of the room where he is interrupted by someone every five minutes. Overseers do not have to stand over their help to get off high-grade production. An overseer should have confidence in his help. By doing so he has more time to himself and can do some thinking. He can figure how to cut down his running expense. C. E. S.

Changes Made in the Overseer's Absence

Editor, Overseers' Round-Table:

Discussion of the super making changes while the overseer is away bring to mind an experience I had.

While I was out on sick leave the super saw fit to make a change. Although I did not like the change I accepted it and in a short time I was able to prove to the super that he was wrong and I right. If I had been offended and left the job I would have been the loser.

I think the super has the right to make necessary changes when the overseer is out. The overseer should be open minded enough to give the change a trial. If results are not satisfactory the super should be man enough to acknowledge his mistake. If, on the other hand, the results are more satisfactory the overseer ought to be willing to acknowledge it, for both are working for the benefit of the mill. A. J. C.

Libraries in the Mill

Editor, Overseers' Round-Table:

I am thoroughly in accord with Hank's idea of a library in the mill and believe that every one concerned would derive immense benefits from same; even Bill might catch up with the trend of modern thought.

I do not believe that Pete's idea of putting the books all together and then having a reference file could be improved on. This, to my way of thinking, would save many weary hours of searching and perhaps enable a fellow to find the very article that he needed at the time that he needed it worst. Regardless of Bill's wise crack about frills I am forced to cast my vote with Hank and Pete.

P. P. Milton.

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Summary of Discussion on Group Insurance

In the neighborhood of 60% of the contributions received were against group insurance. The principal objection was that it was a waste of money since the workers either did not appreciate it or were entirely indifferent. Those favoring group insurance stated that it was a well known fact that the average worker did not take care of insurance privately and that group insurance served a fine purpose in providing for those left behind. This group claimed that group insurance was a means of keeping the workers in an easy frame of mind.

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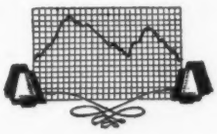
◆ *Survey of Fabric, Knit Goods, Yarn and Raw Material Markets* ◆

TEXTILE WORLD ANALYST



Stability in Wool Values Appears Likely

By Dr. L. H. Haney

THE month of April has brought several changes in the wool manufacturing industry. The rise in foreign wool prices was checked, and, although most primary markets were firm, weakness appeared in New Zealand and also at the London auctions. A decline had been anticipated by weaker prices for Bradford tops, and this item has declined further since the London openings. Apparently "withdrawals" are helping to hold up prices in London, and although some of the wool bought in Australia several months ago is finding its way to London in order to realize cash, trade reports state that manufacturers have confidence in the current level of wool values. This is largely because London prices appear to be actually below parity with primary markets.

Domestic prices have been gradually stabilizing. Demand for raw wool increased, stocks decreased as manufacturing activity was stepped up, and foreign prices rose sharply while domestic prices declined. The temporary recovery in general business in the first quarter also helped. Despite these forces making for firmer raw wool markets, however, advances have been retarded by the expectation of a large clip and also by the fact that the general price decline tends to make a lower normal for raw wool prices. These inhibitions have not yet been overcome. The increase in activity may prove to be temporary as it was in business in general.

Favorable Factors

1. Prices of raw wool have held up fairly well in Australia; London prices are considered as below parity with Australia on a similar exchange basis and have held near the opening quotations.

2. Domestic raw wool prices have been more stable recently. This situation tends to increase confidence and lessens the risk of inventory losses.

3. The increase in foreign wool prices a few months ago has not been duplicated in domestic markets. The relatively dear foreign prices tend to discourage imports.

4. Stocks of independent raw wool dealers are believed to be less than 10,000,000 lb. The cooperatives have reduced their holdings substantially since the beginning of the year.

5. Mill consumption of raw wool increased in March and, on an average daily basis, was the highest for any month since January 1930. Consumption is large compared with imports and receipts.

6. The activity of combs, worsted spindles, and looms showed good gains in March.

7. Stocks of tops in continental commission combing establishments on March 1, were less than on the first of January or February.

8. The statistical position of worsted yarns shows a further improvement.

9. More men's and boys' suits wholly or partly of wool, were cut in March than a year ago.

10. Stocks of goods are small and clothing prices are the lowest in years.

11. Wholesale dry goods sales (adjusted) gained in March.

Unfavorable Factors

1. New Zealand raw wool markets were easy during April, and Sydney closed lower. Australian exchange is well below par.

2. London auctions opened 5 to 15% below the previous close. Withdrawals have prevented further declines.

3. Domestic markets are dull as mills are now fairly well covered on requirements. The new clip must be moved and this together with a large carryover assures an easy supply situation.

4. Bradford top prices have been weak; English goods exports very low.

5. Woolen spindle activity fell off rather sharply in March.

6. The average replacement margin of worsted yarn manufacturers fell to a new low in April.

7. Goods buying is at an unsatisfactory level and restriction of credits tends to retard distribution.

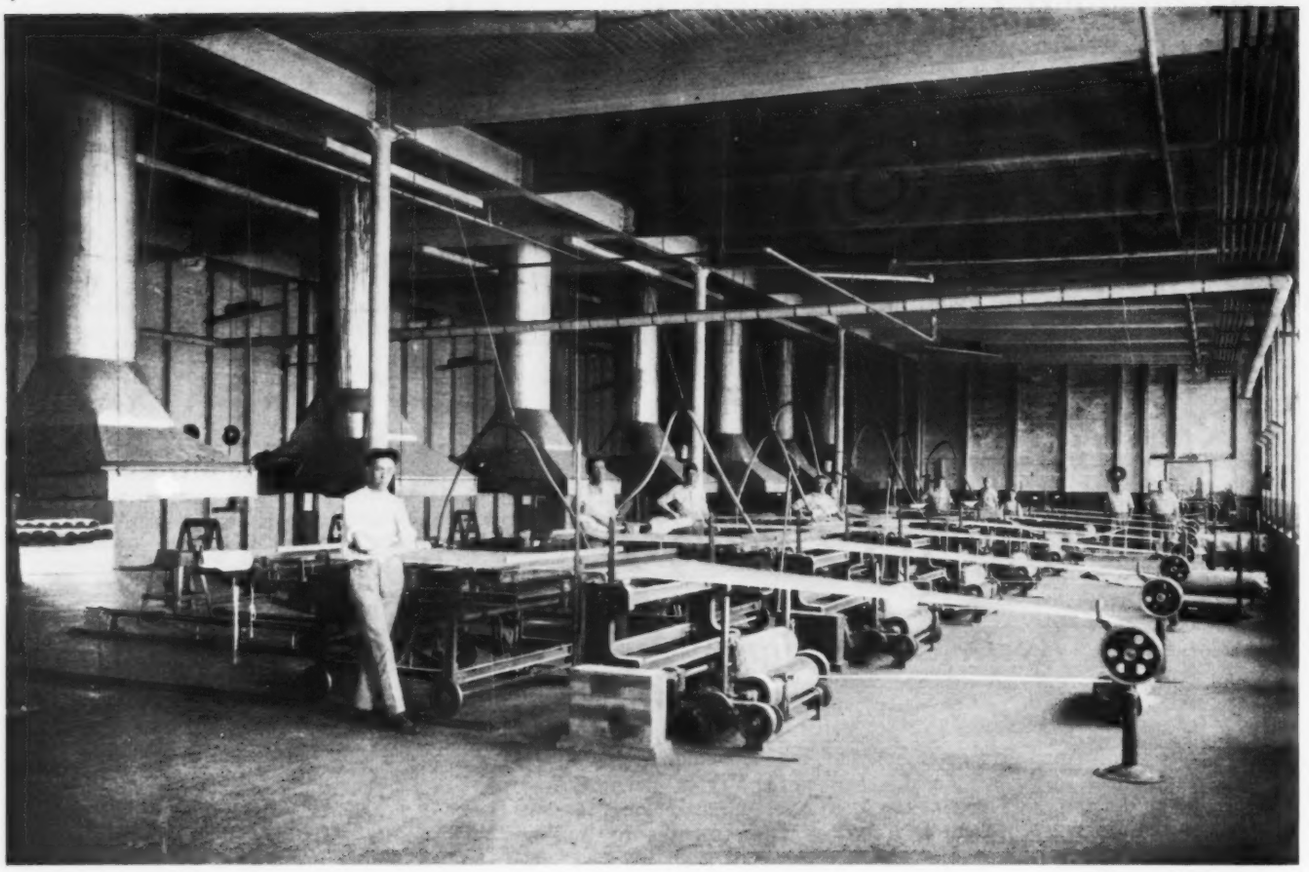
8. Woolen and worsted goods prices continue to decline. Manufacturers' margins were lower in March, when figured on a current replacement basis.

9. Raw wool is relatively dearer than cotton or silk.

10. General business is again declin-

Summary: **Domestic raw wool markets have become more stable in recent months and are reflecting earlier strength abroad. Supply conditions are so easy in this country, however, and the demand situation so uncertain, that prices here may do no better than hold firm for a while. Renewed declines abroad again postpone hopes for a sustained advance. Yarn prices will probably stabilize within the next few months. Cloth prices will tend to sag until yarn prices are more stable.**

The analysis and forecast by Dr. Lewis H. Haney, director, New York University, Business Research Bureau which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.



One of the Gassing Rooms for B&C Mercerized Yarns

Here the yarns are singed or gassed which removes all excess fuzz, giving them that smooth clean dressed up appearance, also more yardage per pound, much higher lustre and a better and cleaner fabric.

Most important of all gassed yarns actually cost you less than ungassed yarns. Write for prices.

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ing and commodity prices in general are making new lows.

11. The P/V Line declined in April.

The foregoing factors indicate that raw wool markets in this country are likely to be firmer than those abroad. It is true that a new clip of 350,000,000 lb. or more is to be added to a large carryover, but domestic wool prices are so much cheaper in comparison with foreign grades than they were a few months ago, that imports are likely to remain low. Moreover, mill consumption of raw wool has increased rapidly and trade reports indicate that the current level of activity may be sustained by some mills for several months.

If, as the Analyst has previously suggested, domestic prices are tending to lag behind those abroad, then domestic wool should at least hold firm for a while in response to the earlier strength abroad. Somewhat analogous situations arose in the fall of 1929 and the spring of 1930, when withdrawals led to an artificial rise in foreign markets. In both cases, prices here held firm or rose slightly for about three months before the decline renewed.

There has now been a setback in foreign wool prices, however, and some decline in the woolen branch of domestic wool manufacturing activity. These developments, coupled with the fact that general business is again receding, suggest that wool manufacturing activity may also suffer a setback. It does not seem that wool prices can make any sharp or long-sustained rise. It is even possible that our heavy supply may prevent any advance. But stability and firmness are probable for a time even though they may later prove to have been temporary.

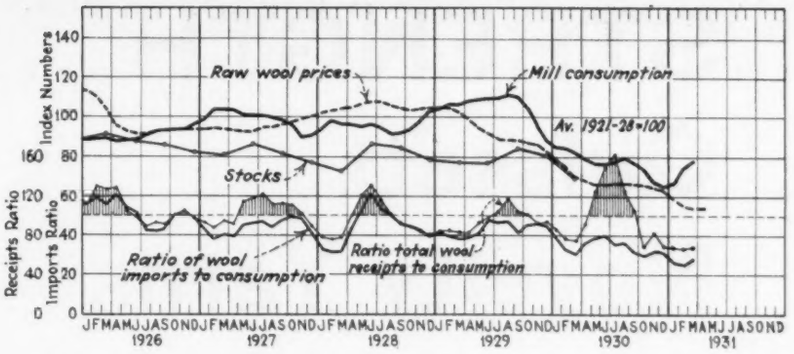

*Fig. 1. RAW WOOL BAROMETER: Price—*Textile World *Index; Mill Consumption—Grease equivalent, average daily adjusted for seasonal variation, three-month moving average; Stocks—U. S. Total, grease equivalent, end of quarter, adjusted for seasonal variation. Ratio of Total Raw Wool Receipts in the U. S. to Mill Consumption—Receipts not reduced to grease equivalent, adjusted for seasonal variation. Consumption as above, three-month moving average. Average for 1921-1928 = 100 for all four indexes. Ratio of Raw Wool Imports to Mill Consumption—Imports not reduced to grease equivalent, adjusted for seasonal variation. Consumption as above, Average 1921-1928 = 50, three-month moving average.*

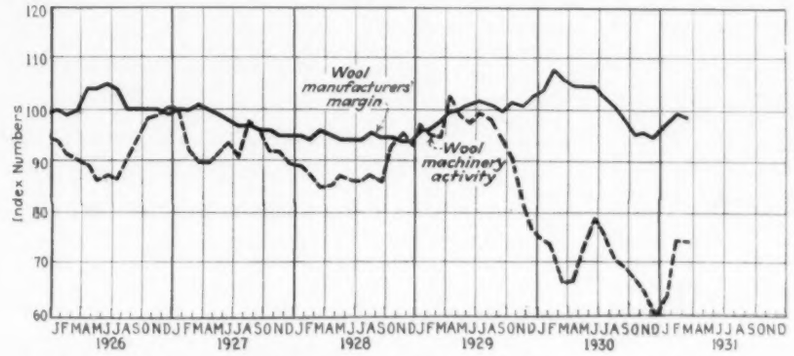

Fig. 2. WOOL MANUFACTURERS' MARGINS AND ACTIVITY: Wool Manufacturers' Margins—Average of replacement margins; Wool Machinery Activity—Composite of loom and spindle activity, adjusted for seasonal variation; Average 1923-1927 = 100 for both indexes.

Statistical Position of Wool Stronger

The Textile World index of raw wool prices was unchanged during April at 53.2% of the average for 1921-28. This compares with an index of 66.9% in April 1930. Not since last September has the monthly wool price index held so firmly. Fine wools continue to have the preference; woolen wools are not quite so firm. (Since the London auctions opened there has been a slight tendency to give concessions from market quotations.)

One of the chief reasons for the firming of wool prices is to be found in the adjusted index of mill consumption. On the 1921-28 basis, this index has risen from 60.6% in December to 86.0% in March. This latest figure has not been equalled since January 1930, when the index was 90.6%. The sharp gain in the worsted end of the industry was largely responsible for the good showing.

Receipts at Boston and imports of raw wool have probably been larger than in the month of April 1930, but they are still subnormal compared with consumption. There is no suggestion as yet of stocks piling up, although they may be decreasing less rapidly. The new clip, however, may quickly change this situation.

In general, our raw wool barometer indicates a stronger position than a month ago. An increase in the ratio of imports to consumption often accompanies increased manufacturing activity, especially when the ratio has been subnormal. Again the sensitive index of comb activity made a more than seasonal gain, and suggests that a fair degree of consumption may be maintained. However, the slump in the woolen branch of the industry tends to offset this improvement.

Yarns Strengthening Slowly

The Textile World index of worsted sales yarn prices in April was 66.0% of the average for 1921-28. This was sharply lower than the March index of 68.5 and compares with 80.8% a year ago. The decline was to have been expected, because yarn prices had been lagging raw wool. But the stronger statistical position has, as yet, found no reflection in the spinners' replacement margins.

March statistics reveal an improvement in worsted spindle activity, but it appears to be below its average relationship with loom activity as was also the case in February. A continuation of this favorable spread should ultimately bring stable margins. The firmness in raw wool is likely to be followed by firm yarn prices, and then if spinners continue to hold output in balance, yarn prices may be expected to show practically equal strength with raw wool.

Cloth Prices Decline

The Bureau of Labor Statistics index of woolen and worsted goods prices declined sharply in March to 78.7% of the 1921-28 average. This compares with 80.6 in February and 89.8 a year ago. The Textile World index of wool cloth prices also declined.

Our index of average loom activity in March was equal to the peak of 1930. Wholesale dry goods sales, however, were at a low level even after an improvement in March. While dry goods sales largely represent other than wool textiles, they are an important indication of textile demand. At any rate they tend to support the idea that production of wool cloth has been stepped up too rapidly. Manufacturers' replacement margins suffered a setback in March, although raw wool was actually cheaper.

Continued poor demand conditions indicate that even though cloth prices may stabilize, following firmness in raw wool markets, margins are likely to lose some of the gains made since Fall unless production is carefully controlled.

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QUISSETT Cotton Yarns AND Quitex Spun Rayon

YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

◆Trading in Cotton Yarns Almost Stops

THERE has been churning in the yarn market this week, but ground has not been gained; neither has it been lost. There has been no degree of strength shown; neither has there been appreciable weakness. In fact, business has been of such an unimportant nature that there is not enough upon which to hang new prices. Spinners have assumed a watchful waiting policy; new business of volume could be placed at lower prices than were available last week.

In past periods of dullness there has usually been one trade which decided that, when the others had crawled into their shells, it was a good time for a fellow to "walk on the opposite side of the street" and buy some yarn. No trade has done that this time.

This inquiry resulted in a range of quotations on carded knitting yarns with the average showing little or no change from those noted last week. The manufacturer wanted to buy for less than 17c. basis 10s, but found all spinners of average quality holding at that level. A small amount of business has been placed under 17c. but in majority of instances the yarn will hardly be first class spinning.

Singles Bring More Money

It is interesting to see spinners and dealers quoting two-ply weaving counts in carded and combed at as high or higher prices than they are asking for the same counts in single. It is possible to buy 20s-2 warps at 20c. but if you want the same count in single, spinners refuse to quote less than 21c.

There are several reasons for this condition, which arises every now and then, but has always proved of short duration. The most important at present are the lack of demand for all counts and the much larger production and keener competition in the two-ply than in the single. Two-ply weaving numbers are speculative; singles are not.

Knitting trades have been poor customers for sales yarns during recent weeks; hand-to-mouth sales of unimportant size for prompt shipment have long been the rule with this trade. Upholstery manufacturers have shown poor interest; the carpet trade has been placing a fair amount of business, some improvement in it having been seen in the last few weeks. Sales to the wire trade have declined noticeably.

Combed yarn spinners of the Gaston County area reduced their operating schedules about 3 or 4% as compared with the previous week. Majority of Gaston County mills are now considering a single shift of 55 hours as the maximum normal run, but very few are even attaining this rate. Average running time last week was about 46 hours for combed yarn spindles in that area. There has been a slight increase in sales in the South of warp yarns for weaving.

◆Cotton Waits for Fresh Incentives

WHILE rallies from the low levels of early this month have not been fully maintained, the cotton market has shown a fairly steady undertone during the week. July contracts which sold up from 9.59, at the low point of May 2 to 10.19 on May 9, reacted to about 9.80 toward the end of this week. Evidently any disposition to take a firm position on the buying side was discouraged by the action of the stock market, the statistical position and the failure of reports from textile centers to show any improvement of consequence. Selling, however, has been restricted by unfavorable weather conditions in the South, and the market on the whole has shown an inclination to await further developments at about 10¼c. level for early new crop deliveries.

The bearish factors in cotton have been very fully discussed for the last few weeks. They include the prospect for a large end-season carry over, in fact, the second largest on record; the continued depression of trade as reflected in the stock market as well as in demand for commodities; and a belief that the reduction in acreage will not amount to more than 10% as compared with last year's figures. This is a reduction which will not insure a crop of less than next season's probable world consumption and while it may be pulled down below requirements by a small yield per acre, the trade is no more disposed to discount an unfavorable growing season than to assume that the yield will probably reach an average or exceed it.

Under these circumstances bullish views must be based on the low price, the probability of a gradual improvement in trade, and the possibility of crop scares during the summer. With any marked improvement in tone of the stock market, it is not unlikely that these possibilities will come in for increased attention, and as it is, they are playing a larger part in the market by setting up more frequent points of resistance to further declines. The buying noted on the dips comes chiefly from price fixing by the trade and covering by shorts, but there has been some commission house buying on a theory that purchases on the declines of this spring are likely to show profits before the growing season is over. The news of the week has thrown no fresh light upon any of the major uncertainties.

All reports still indicate marked decrease in acreage and a sharp reduction in the use of fertilizer stock. The latter is expected to be in the neighborhood of 25 to 30%. Meanwhile the weather in the South since the middle of April has been too cool, and the start of the crop, which at one time promised to be early, is now thought to be slightly later than normal. Considerable replanting is necessary, which, with a continuation of unfavorable weather or in the event of further declines in the market, might possibly lead to some abandonment of intended acreage. In a general way, however, it is felt that no harm has been done the crop that a week or two of really warm, good weather would not remedy, and the main cause for any apprehension of a short yield per acre would appear to be the reduction in the use of commercial fertilizer. Emergence of boll weevil has been retarded somewhat by low temperatures and one of the well-known authorities thinks that serious damage is likely to be confined to localities.

Except for those who may intend to tender or receive cotton between now and the end of the month, the interest in May contracts seems to have been quite fully liquidated. Little business is passing in the southern spot markets but the basis seems to be generally steady, with no pressure to sell in evidence.

Market Briefs

Cotton: ***Rallies are not maintained but undertone improves.***

Cotton Yarns: ***Cotton yarns dull but fairly steady.***

Cotton Goods: ***Quotations show greater resistance.***

Wool: ***Market quiet with interest centering in fine and ⅜s grades.***

Worsted Yarns: ***Prices steadier in a moderately active market.***

Woolen Goods: ***Men's wear demand good; women's less active.***

Silk: ***Touches new low point this week.***

Silk Yarns: ***Spun silk yarns more active on shirting demand.***

Silk Goods: ***In unsatisfactory condition for spot sales.***

Rayon: ***Demand continues active; stocks not increasing.***

Knit Goods: ***Full-fashioned less active; cool weather hurts underwear; outerwear interest is good.***

Less Demand for Staples

MEMPHIS, TENN., May 11.—Demand for staple cottons fell off perceptibly during the week but there was some-

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COTTON and WORSTED YARNS

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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

what better demand for 1-in. and shorter cottons. The staple association reports complete stoppage of buying but says it looks for a gradual movement of delta cotton throughout the remainder of the season and exhaustion of stocks before the new crop is on the market. There were sales of several lots of fair size during the week, swelling the total somewhat out of proportion to the general activity of the market; first hands offered a little more freely on the advance but were disinclined to shade the basis, although, here and there, there was some evidence of tired holders—principally those who feel financially unable to carry old crop cotton into the new crop months.

Sales totaled 8,668 bales against 5,880 last year and 11,785 the year before, making 684,069 bales for the season against 981,291 last year and 897,751 the year before. Receipts were heavy—8,845 bales net, against 2,530 last year—but represented in the main concentration of buyer cotton. The unsold stock, by reason of light receipts by factors and minus revision on actual count, is officially reported at only 18,400 bales against 41,687 bales last year.

Weather Unfavorable

The weather during the week was wet and cool, except two or three days with about seasonally normal temperatures at its beginning.

The weather in this territory was typical of most of the belt. Germination was slow; planting is well advanced but little further progress was made during the week.

◆Cotton Wastes Continue Dull

BUSINESS in the cotton waste market continues on a restricted scale. The interest in upland and peeler strips noted last week held up well during the early part of this week, dealers receiving a fair amount of business from both northern and southern consumers. There was some call for peeler comber also, and it is quite probable that more business could have been done in this type of waste if dealers were willing to meet the low bids made by inquirers. Dealers see no reason for granting concessions, however, pointing out that stocks are not burdensome, and prices are not out of line with current cotton values.

Bedding stocks are fairly firm in price, plenty of good picker being available at around 3c., while choice willowed fly is quoted around 4 to 5c. Threads for machining purposes are still very dull, the white at 6¼ to 6½c., and the colored at 5 to 5½c. for domestic materials.

◆Worsted Yarn Prices Display Steady Tone

THERE is no feeling of uncertainty in sales worsted yarns at this time as is seen in cotton yarns. In the latter, sellers are worried and are apt to accept prices under the previous level. In worsted yarns there is less of a disposition on the part of spinners to accept lower prices than has been noted heretofore. There have been no advances but a degree of steadiness is seen that is significant.

There has been a fair volume of men's wear mixture and outerwear orders, English and French, placed during recent weeks and spinners have some business in hand. Most of it does not run far ahead, as there is noticeable absence of future contracting except in mixtures where it is imperative to a certain extent. With this condition among spinners and a fair wool market there is nothing upon which buyers can hang a cry for still lower prices, spinners' margins being small in most instances.

Outerwear yarn demand is fair to good but it is becoming more selective. Buyers are willing to place sizeable orders when the price is low, but the only counts that are going over in a big way are those that manufacturers can use in a number of different lines. For example, a bathing-suit manufacturer will load up if the count can also be used for sweaters. In such instances fair size sales have been reported.

In English spun knitting counts, after a long decline, there are signs that the market has found a bottom at 80c. for 2-20s, 50s. The price has hung around this basis for several weeks. While there are reports of this basis being cut, the practice is not apparent among representative spinners turning out a first class 50s yarn.

There is little doing in zephyr knitting counts. This interest has been a keen disappointment this year. It had been felt that zephyr yarns for the knitting trade, especially 2-40s, 64s, had become a staple number and were not likely to show major fluctuations in demand from year to year.

The reason for present lack of interest in this count is that women are wearing boucle and similar fabrics, and the zephyr type knitted suits have for the time being been thrown overboard. This is temporary and spinners believe that the fall will witness a large call for this count. It is felt that the style change which has caused lack of interest is temporary and that zephyrs will come back.

Men's wear manufacturers are taking fair size amounts of mixture yarns in English and French spun and prices quoted by leading spinners show a steadier tone than two weeks ago. While contracts far ahead are not numerous several spinners have a fair volume of business and operations are at a good rate.

◆Fine and 3/8s Wools Gain in Consumption

THE wool market is in a waiting attitude. The first quarter of the year developed actively, but since then manufacturers have been buying irregularly, taking only small quantities to cover additional scattered orders on fabrics that have found favor in the goods market. The wool trade is not trying to force the situation and finds its major interest at this time in the acquisition of the new clip. The slight market fluctuations noticeable are not of any particular significance.

Wool business is moving chiefly in fine and three-eighths blood wools. Mills are showing some interest in general offerings but are making few commitments. The trade seems fairly confident that current price level is likely to hold even though manufacturers are at the moment on the sidelines.

There is a disposition in some quarters to regard prices hitherto paid for early shorn wool as on the high side. Dealers are therefore playing for a quick turnover and are apparently in a better position than the cooperatives for such operations.

Domestic fine and three-eighths blood combing wools have been moving steadily into consumption. In the first three months fine wool consumption *gained* 2,302,000 and three-eighths blood wool 2,060,000 grease pounds as compared with the first quarter of 1930. The total consumption of all wools for clothing fabrics for the first three months of this year was 2,928,000 grease pounds *smaller* than the consumption of the first quarter of 1930. The consumption in March for concerns reporting made a gain of 9%, confined entirely to worsted wools. Wools for the woolen division, scoured and pulled, lost about 8% for the month. Carpet wools showed a slight gain in the combing grades. The largest gains of the month were in three-eighths with an increase of 805,000 lb. and quarter-blood of 797,000 lb. March consumption was the largest of any month since January, 1930.

The foreign markets keep fairly steady although as the London sales progress withdrawals become more numerous. Continental demand for wool is less keen. The United States has bought practically nothing to date. Bradford top makers expecting easier prices have been able to acquire further quantities

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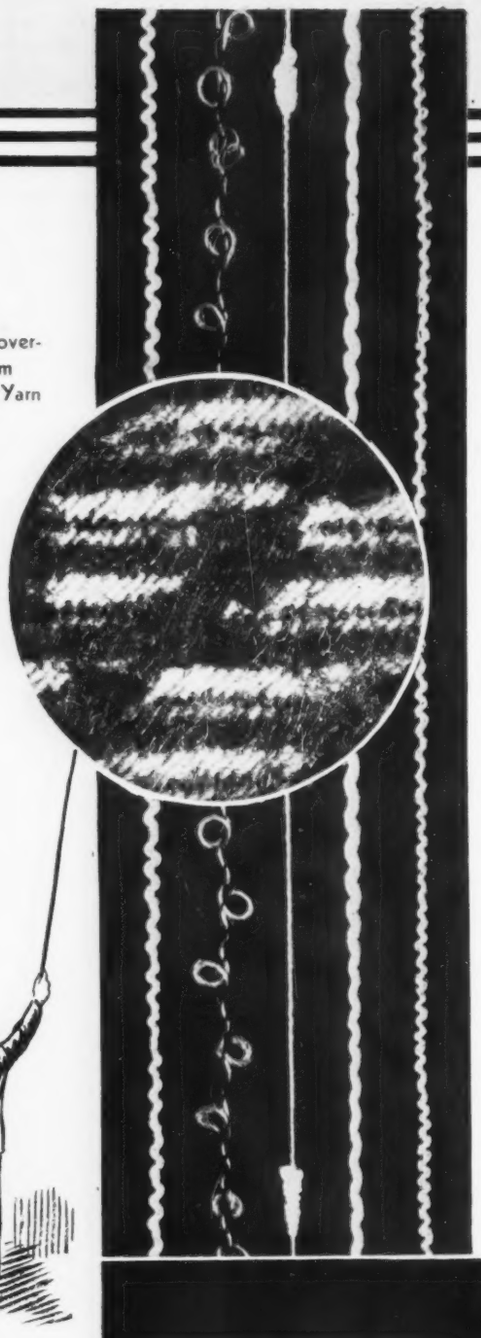

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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

of suitable wools at prices more in line with the top demand and market. The Sydney sales closed for the season with good competition and firm prices for the best wools but other types declined about 5%. Boston imports of Australia for month to date approximate 5,000 bales.

◆Sluggish Buying of Wool Substitutes

WOOLEN mills are not showing any general buying interest in raw materials. There has of late however been steady buying of light hoods by New York parties for the account of a large woolen organization. Prices have risen from 9½c. to 12c. and 13c. is in sight if the demand continues. The rise in light hoods has demonstrated that when manufacturers realize the need for any particular rag, a rising price trend will be established. Grading operations have been so far below normal for months that desirable standard rags are in limited supply.

Not for many years has the market been so free from foreign rag offerings and so long as the high duty remains in force this will continue. When some decided comeback occurs in woolen manufacturing, the shut-out of foreign rags will inevitably prove a strong supporting factor for the domestic rag trade, but mill demand for months has been so inadequate that domestic supplies have been more than sufficient for consuming demand. All white rags are low-priced, active only in spots, white softs around 22c., white knits around 23c., paper mill felts around 24c. White sweater clips are a firm feature at 38-40c.

Movement in wool waste continues slow and efforts of dealers to induce larger mill purchasing bring disappointing results. White worsted threads encounter some purchasing. White woolen threads, if all virgin wool, are considered a good purchase. Cheap wools are considered by not a few dealers as a hindrance to a larger movement into consumption of wool waste.

Noils are in slower demand than a week ago and the finer grades are softer by 1c. or more a pound. Relative scarcity of three-eighths blood and quarter-blood keep prices firm on these grades. Manufacturers continue to make bids below the market and it is believed that more business could be done if dealers were willing to sacrifice their small profits. Mill output of medium noils is far from large, although of late there has been a decided increase in consumption of medium combing wools.

◆Spun-Silk Yarns for Shirtings More Active

THERE has been a more active demand for ply spun silk yarns but singles are quiet. Better interest in yarns used in manufacturing broadcloths and shirtings has been apparent during the last two weeks and trading has assumed a more favorable appearance from the selling angle. Volume is slightly above the April rate mainly on account of better demand from mills making shirting materials. There has been no change in prices during the last few weeks.

Thrown silk yarns have shown no decided change in demand nor in prices, the latter displaying little firmness in view of the action of the raw silk market recently. There were signs that manufacturers in several lines, especially full-fashioned hosiery, were getting ready to buy more freely but in most cases this feeling has been dissipated by the softness of the raw market during the previous week.

◆Raw Silk Futures Reach New Lows

TALK of $2 silk is again heard in the raw silk market, and opinion is that there is a fair chance for these predictions to be realized. There are three factors at work in this direction: present poor demand, sales of syndicate-held silk by Japanese interests (the most recent one being reported last Saturday amounting to 2,000 bales), and finally possible desire on the part of primary silk countries to affect the coming silk crop.

In view of these bearish factors it is not unnatural that prices in New York market have been soft, tending to follow prices at Yokohama and Kobe downward. Yet New York has been doing about as well as could be expected both in respect to holding and the amount of business placed. The latter was fair until early this week when the renewed decline arrested trading and the volume will probably be smaller than recent weeks.

A fair number of contracts have been reported, calling for July, August and September shipments; October has also been specified in a number of instances. Yet there has been little call for spot delivery. This indicates that buyers have some confidence to operate ahead, but for the immediate future they feel that still lower values may be seen.

Further releases of syndicate-held silk are expected. In fact there has been some surprise in the trade as to why Japan has waited so long before doing it. The silk is there, and the consensus of opinion is that it will come on the market sooner or later. The sooner probably will be the better for all concerned.

Admitting that the spot price may continue to fall, selling houses are nevertheless fairly optimistic concerning the nearby months and believe they will be able to do a substantial volume of business notwithstanding the prospects of instability of spot silk. There is also the possibility that Japanese releases of held silk have been pretty well discounted by the present price level.

Unless there is a decided and prompt improvement in the entire situation, indications from Japan state that silk farmers will cut output of the spring crop 10% and 30% for summer and fall cocoons, or a net cut of 20% for all crops of the coming silk year. Such talk has had little effect to date upon quotations. This week the futures market broke through to all-time lows when July and August contracts sold at $2.13 or 1c. under the low touched in October, 1930.

◆May Rayon Sales In Good Volume

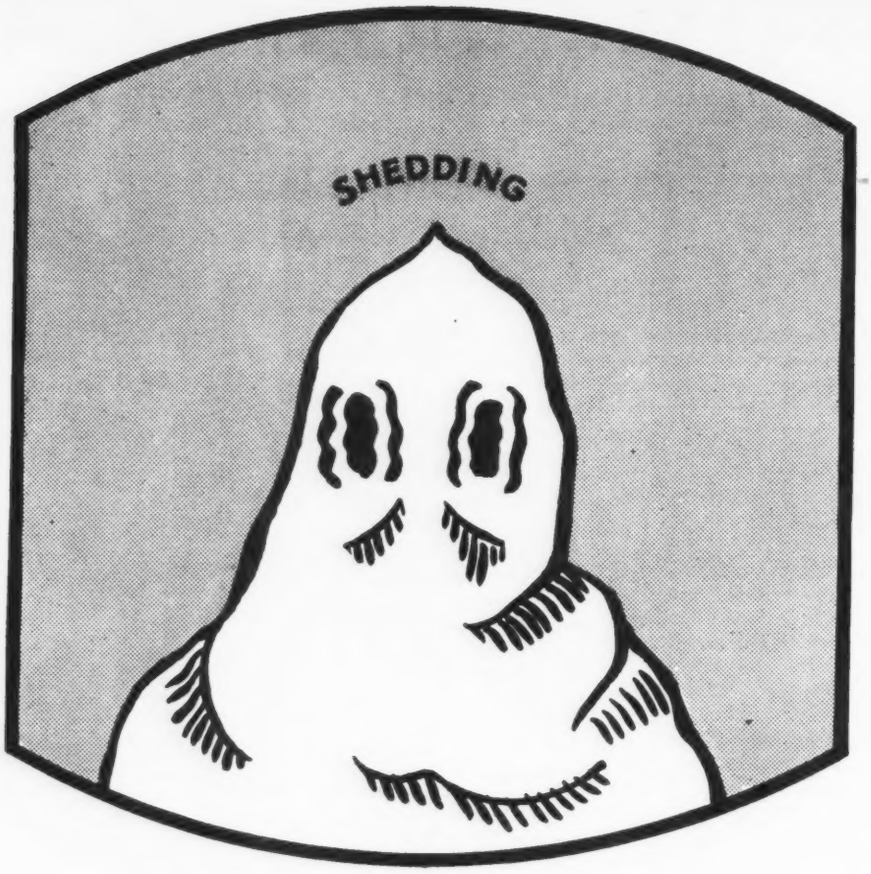
RAYON continues to be one of the most active markets in the whole textile field. There are no indications that this will taper off in the near future. Producers however doubt that the volume will remain at its present level during the summer months when there is normally a drop in demand. If this drop is merely seasonal in size this year there will be no cause for complaint but rather for congratulation.

Trading is at a rate equal to that of April, which was one of the largest poundage four-week periods that producers have experienced for many months. Sales are being made at a rapid pace but are not breaking any records in this respect. The fact is, that while sales and deliveries are in excess of production, the latter leaves something to be desired in that most manufacturers are only producing a portion of their full capacity.

Sub-standard yarns are still a factor of importance in the market. There is a strong demand for these in certain deniers, coming mainly from weavers of rayon crepes. Yet there are reports in producing circles that supplies are about exhausted. If this is true then it remains to be seen whether demand developed yarns of this type or whether yarns of this quality are being made to create a definite demand.

Comment has been made that when the stocks of sub-standards have been liquidated, this phase of the rayon busi-

(Continued on page 61)



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FABRIC MARKET REPORTS

TEXTILE WORLD ANALYST

◆No Seasonal Dull Period in Wool Goods

PROBABLY the total volume of wool goods business lately current has been nothing remarkable as compared with more normal years, but appearance of activity has been magnified because the orders placed are going to a smaller number of houses. There are firms which are booking more business than they can handle, while competitors handling similar lines are doing practically nothing.

The ones which are rushed are those which have the exact type goods wanted, at prices that buyers can pay. It may be that a competitor has the price but not the type designs that are selling and such a firm cannot understand where all the activity is that he has been hearing about.

Houses in the active category report that business with them has shown no signs of diminishing but rather the reverse. This applies particularly to men's wear houses which have the sort of fabrics wanted for fall. This does not necessarily mean low price lines, because all price ranges are active.

A factor of the first importance in helping to continue this buying wave has been the discussion regarding the possibility of higher prices being quoted on fall goods in the near future. This is a good talking point for the seller, but well-informed factors discount it. The position of a buyer however is difficult when he learns that the seller cannot make any more deliveries on a certain number at the time wanted.

More Bullish Talk

Both factors, talk of higher prices and buyers finding sellers independent when deliveries are discussed, have caused a disposition to order for fall where there was little inclination in this respect a month ago. Higher prices will probably not be seen for some time even though these may be justified. There are enough sellers who do not "want to kill the goose, etc.," and who will not take a chance of doing this in naming higher prices just yet.

There is a good demand for summer coatings in the women's wear field, although this has been somewhat impeded by the cool weather. There is also good volume of sampling for fall fabrics. Rough, nubby woolens are going to be good numbers when duplicating begins. Crepes and conservative fancies ranging in price from $1.75 to $2.25 are being sampled widely.

No Summer Tapering Off

A conservative inventory policy and the steadiness of wool and yarns is giving buyers of goods a more confident feeling and it may be that activity among manufacturers will show further expansion in the next few months at a time when other lines are expecting the usual summer decline.

◆Cotton Goods Have a Firmer Tendency

PRINT cloth buyers are "on the fence" and it is a question which way they are going to jump. Seller will contract a case of cold feet and will offer a print cloth at ¼c. less than the going price. Within a few hours buyers may get the idea this type is going higher and prices will quickly snap back and a good demand develop suddenly.

Instances of this character have been numerous during the last two weeks. As an example, one morning a small house, for some unknown reason, decided to offer 68x72s at 5½c., which was ¼c. under the market at that particular time. The result was that they booked a large volume of business and caused others to buy and two hours later the price throughout the market had snapped back to 5¾c. There was a period of healthy buying.

The following day the cotton market showed a weaker trend and buying stopped. Buyers have refused to operate extensively during the last six weeks, being in direct contrast to the active trading seen earlier in the year when cotton goods sales were pointed to as an example of the come-back of the textile industry.

There are indications that a condition is being created which will result in an early resumption of buying of fair proportions. What is needed more than anything else is a feeling of confidence on the part of buyers that prices are stabilized. Until this is realized, trading will continue in the rut of the last six weeks.

Spurts of activity in certain print cloths indicate that buyers have let their supplies run low in numerous instances and the probabilities are that they will overdo it.

While sales of print cloths have been falling off, a number of houses have found that orders for fine and fancy goods, sheets and pillow cases have been holding up well and expanding in several instances. Broadcloths have been acting in a similar manner being generally quiet during the last two weeks.

Leading sheeting manufacturers reduced prices this week to the lowest level seen for 14 years. In bleached sheetings the new prices are based on 43c. for 81 in. width, a reduction of 3c. Producers who have not done so are expected to follow the lead of Parker, Wilder & Co., and Taylor, Clapp & Beall.

◆Trying Period for Broadsilks

BROADSILKS are looking forward with little regret at the approaching end of the spring buying season. It has been one of the most unfortunate for sellers that they can remember. The volume has been nothing exceptional, small or large, but the prices at which merchandise has been moved during recent months has placed this business in one of the most unfavorable positions for many years.

Buyers at no time have been willing to order in large amounts. This has made it essential that distributors carry a wide line of patterns, and the result has been that stocks have been larger than they would have been had production been confined to a smaller number of patterns that were in good demand.

Cheap Shantungs Numerous

There has been some improvement in the market both in respect of volume and stability. The latter feature still leaves much to be desired, and $1.00 shantungs are the nightmare of houses which are trying to sell a quality piece of goods at a fair price. There are sellers whose main interest appears to be to turn merchandise into cash without much consideration for what the effect upon the general situation will be.

There is a bright lining to the clouds in the fact that the large volume of distress selling in the spring season may make sellers willing to do most anything to change the situation for the fall goods. For example, sellers may refuse to make up such a wide variety of goods in individual cases and stocks may be kept by manufacturers within more conservative limits.

This should be the peak of the spring season for shantungs and printed chiffons. The latter had been selling well for a short time, but trading in them has been restricted by unseasonable weather. Breaks have been against the broadsilk market so far this year and even the weather man refuses to give them a lift. The cool temperatures have brought to a sudden end, for the time being, sales of these fabrics.

The inability of several buyers to obtain duplicates has lead to talk of shortage in prints, but this may be discounted. There will be no shortage although buyers may find it impossible to locate duplicates of patterns bought at distress prices several months ago. Distributors carried a wide line of different designs but only a small yardage of each. It is frequently impossible to locate more of the same design and this results in a loss of business in individual cases.

KNIT GOODS MARKETS

TEXTILE WORLD ANALYST

◆Bathing-Suits and Spring Sweaters Move

SWIMSUITS and spring sweaters are active and the lines in popular demand are difficult to locate for nearby delivery. A number of manufacturers of bathing-suits have made advances in prices of 50c. per dozen and are only taking business with the proviso that delivery may be made after the latter part of June. Spring sweaters are almost in the same class, being hard to get for immediate shipment in most lines.

Undesirable patterns are available, but the outstanding lines are strong. There is more inquiry in sweaters for fall, expansion in demand being apparent for the last three weeks and there are signs that the rush in spot spring wear is having the usual psychological effect, causing buyers gradually to change their ideas about placing fall business.

The fact that deliveries on wanted bathing-suits are difficult to secure and that spring sweater deliveries are late is causing buyers to place fall business where there was nothing previously that far ahead.

Houses handling plain and fancy swimsuits report good business, well styled lines of each classification being ready sellers so that little can be derived from this as to the future of each. There are more suits being made from two-ply yarns than last season, although the trend is not so strong as might be expected. Although there is a demand for swimsuits, this is at a price in a lot of instances and the margin is not sufficient to permit the manufacturer to change over into two-ply construction unless he is willing to go in an entirely different price class.

Although trading is at a satisfactory rate in most outerwear lines sellers claim that the volume is nothing to what it will be or would have been had warm weather come earlier this season.

◆Buying of Fall Underwear Delayed

THE weather has been a handicap to the underwear trade. It has delayed placing spring business by retailers and is having a decided effect upon fall volume. There is little business for forward delivery and a less active trend in the spring lines. There has been a stronger undercurrent in that prices are steadier than two weeks ago.

Fall buying is months late and some houses refuse to believe it is ever coming, but others assert that the situation is one that is going to result in a strong spot condition in the early fall, similar to that being experienced in swim-suits at this time. Last winter no one wanted to even talk about bathing-suits; now they are sorry. The same foundations are being laid in underwear and active trading will be seen late in the season if this dullness continues much longer.

Prices of men's cotton ribs are lower than they have been since 1914; at the same time it is pointed out that they are superior in quality to merchandise offered in the pre-war years. Buyers in the market are interested in price and not quality, to a greater degree than ever before. It is a price market and houses which are stressing quality, except in limited fields, are doing little or nothing.

Mills specializing on a low-price garment for spring and summer, have a larger volume of business on hand than the heavyweight mills. The latter are in need of orders in practically all cases. What little business has been done in forward delivery merchandise also has been in the cheap price ranges; heavyweight buyers are paying little attention to quality but want the lowest prices possible.

It is possible to buy a garment made from combed yarns at about the same prices that were paid not so long ago for carded. This has not caused many buyers to change the quality; they prefer the reductions on the carded and frequently want even lower grade than they have been buying heretofore. What business is passing is going at low figures.

◆Price Not Quality In Full-Fashioned

THE reduction in full-fashioned prices on May 1 by the largest manufacturer, which was followed by others, is still the topic of interest in Worth Street and the reaction of buyers to it is being carefully studied. For the time being the trade is in an undecided state and does not know which way to go. It will shortly be seen whether lower prices will have a tendency to make larger volume or whether, as is frequently the case, confidence will be destroyed.

One definite effect already apparent is the accentuation of the previous trend of the trade to divide itself into two parts. One group is for quality merchandise, and the other is for hosiery to sell at the lowest prices irrespective of quality. There is undoubtedly a demand for lower prices in these lines along with all other merchandise but at the same time manufacturers should not lose sight of the fact that a cheap stocking which does not wear is no bargain at all.

An unsatisfactory bargain will not react favorably for either the retailer, the manufacturer or jobber. There is more discussion along these lines since the last cut than at any previous time. Some distributors are beginning to wonder whether they have not gone as far as they can in the direction of sacrificing quality in an endeavor to offer the lowest prices in the market.

A concrete example of this is related by a large Worth Street distributor who tells of a customer who had developed a wide reputation for his $1.00 full-fashioned stocking. It took him time but the price and quality were fixed in the buyer's mind. Then, following the price cutting, he reduced to 89c. His volume fell off tremendously. He put the price back to $1.00 and his old trade came back and business has been good with him since.

Competition has reached its last stages. There is some discussion where the higher priced mills, many located in the Philadelphia area are going "to get off" in the price race with out-of-town mills and those in the South. Of course there are numerous mills in the Philadelphia section which have built up a trade for a brand name and a certain quality and are in a separate class.

Net hosiery is going "big" at present and indications are that it will continue in good request for as far ahead as one can see, although many refuse to admit that it is by any means a staple. One factor said it would be overdone and he did not give it more than a late fall play for volume.

There has been a larger amount of fall business in seamless hosiery in the last three weeks. Buyers are more receptive and fair size orders for forward delivery and a large volume of sampling has developed in the last two weeks.

Misses' and children's ribs are in larger demand for forward delivery and several selling houses report placing of business by large chains. Wholesalers must get ready for the fall season and its demand for goods to be worn by school children. Wholesalers are asking for larger deliveries this month whereas a decline in specifications in May had been predicted.

Durene Featured at Cotton Promotion Events

During the last 30 days the Durene Association of America has received by telephone, telegraph, air-mail and personal invitation 79 requests for cooperation in southern "Wear Cotton" movements in ten different States, including events sponsored by 32 women's clubs, 11 federations of women's clubs, nine chambers of commerce, 13 civic clubs and cotton exposition committees, four home demonstration agents, two colleges, five merchants' associations, one cotton exchange, one mayor and a number of stores and mills, and 11 county organizations.

TEXTILE FINANCIAL NEWS

TEXTILE WORLD ANALYST

◆ Another Fine Goods Merger Rumored

ANOTHER fine goods merger in New England has been reported as under negotiation. It concerns two mills in Maine, three in Connecticut, three in Fall River, four in New Bedford and three others scattered. The basic group operates over 1,250,000 spindles and nearly 30,000 looms. Additions are hoped for to bring the totals to 1,725,000 and 41,100 respectively. The merger as rumored is quite distinct from the Berkshire Fine Spinning Associates and the United Merchants & Manufacturers.

Associated Rayon Readjustment

The plan and agreement providing for the readjustment of the preferred stock of the Associated Rayon Corp., was approved at the special meeting of the shareholders held in Baltimore, according to reports.

Under the proposed plan, the holder of each share of preferred stock of $100 par value receives $50 principal amount of 20-year 5% guaranteed convertible debentures of Associated Rayon carrying interest from Dec. 1, 1930, to be unconditionally guaranteed as to principal and interest by Vereinigte Glanzstoff-Fabriken A.G. In addition, the holder receives $29.25 in cash and $1.50 in cash through the payment of the March 1, 1931, dividend to the holders of certificates of deposit or their predecessors in interest, as the case may be.

Standard Holds Annual Meeting

At the regular annual meeting of the stockholders of Standard Textile Products Co., held in Youngstown, Ohio, on May 12, the following directors and officers were elected: Directors: A. E. Adams, Jr., A. C. Allyn, Wilford P. Arms, Warren Bicknell, Carl W. Brand, James T. Broadbent, James D. Buchanan, J. Arthur House, E. L. McKelvey, Robert J. Sachs, W. E. Thatcher, and H. E. Wadsworth. Officers: James T. Broadbent, president and general manager; Henry Pope, vice-president; W. E. Thatcher, treasurer; Alfred Pope, secretary.

Reviewing the operations of the year 1930, the president said that the factors that interfered with profitable operations were the same as were common in most industries, principally the lack of volume and the steady decline in raw material prices.

Allen Woolen Mills to Dissolve

At a meeting of the Allen Woolen Mills, Rochester, N. Y., voluntary dissolution of the corporation and liquidation of the business was unanimously voted, it was announced by James Mann, of the firm of Mann, Strang, Bodine & Wright, attorney for the Allen interests.

The real estate, machinery, equipment, stock, etc., will first be put on sale as a going concern and if this fails, they will be offered in separate parcels.

Financial Briefs

Directors of Quissett Mill declared a quarterly common dividend of $1 per share, placing the stock on a $4 annual dividend basis as against $5 formerly. The dividend is payable May 15 to stock of record May 6.

The New Bedford (Mass.) Rayon Co. earned about 23c. per share on its outstanding Class A stock in the first quarter of this year, according to a report issued by Treasurer Benjamin F. Proud. The report adds that operating schedules have been considerably increased, which, together with the introduction of every possible manufacturing economy, should be reflected in better earnings in the remainder of the year.

Shaughnessy Knitting Co., Watertown, N. Y., decreased its authorized capital from $550,000 to $150,000.

Boston Stock Auctions

The following sales of textile shares were made at auctions, Wednesday, May 13:

Shrs	Mill	Price	Ch'ge
42	Nyanza	7½	—15½
14	Naumkeag	80¼	+¼
20	Associated Textile	36½	...
18	Ludlow	110	+3
25	West Point	77¼	—5
119	Total		

The following sales of textile shares were made at auction, Wednesday, May 6:

Shrs.	Mill	Par	Price	Change
4	Naumkeag	100	80	....
22	Associated Textile	...	35-36½	....
2	Androscoggin	100	54½	—4½
10	Plymouth Cordage	100	60¼	+¼
38	Total			

Textiles on N. Y. Exchanges

The following shows the movements of the leading textile stocks listed on the New York Stock Exchange and Curb for the week ended May 12.

	High	Low	Last Sale	Net Change
Adams Millis	26	25¾	25¾	— ¼
American Woolen	8¼	7⅞	7⅞	— ⅛
American Woolen, pfd	32	30½	32	— ...
*Assoc. Rayon, pfd	58¾	58	58¾	+ ¼
Botany Mills, A	2	1¾	1¾	— ⅛
Cannon Mills	21	20¾	21⅛	+ ⅛
Century Ribbon	4½	4½	4½	+ ⅛
Collins & Aikman	14½	12⅞	14	+2
Consolidated Textile	⅞	⅞	⅞	—
*Courtaulds, Ltd	7½	7½	7½	—
Duplan Silk	12½	12¼	12½	—
Durham Hosiery, pfd	21	21	21	—
Gotham Hosiery	12¾	11	11⅛	— ⅛
Industrial Rayon	33⅜	26	31⅜	+ ⅛
Kayser, Julius	13¾	12⅞	13¾	+ ⅛
Kendall, pfd	60	60	60	+3
Mallinson	2	1¾	1¾	— ⅛
Mohawk Carpet	15	13¾	13¾	— ⅛
Munsingwear	20⅜	20⅛	20⅛	+ ⅛
Pacific Mills	19¾	18⅛	18⅛	— ⅛
*Pepperell	74¼	74¼	74¼	—4¼
Real Silk Hosiery	16	15½	16	+ ⅛
*Tubize Chat. B	6½	6¼	6½	— ⅛
United Piece Dye Works	26½	23½	26½	+3

*Listed on Curb.

New England Textile Stocks

Quotations at "Public Sale" are based on last sales at Boston Public Auctions and Boston Stock Exchange. Bid and Asked prices are latest quotations of dealers.

	Sale	Bid	Asked
Am. Mfg. Co., pfd	52	44	48
Amoskeag	8½	...	...
Arlington	18	18	20
Associated Textile	36½	34	37
Bates	60	59	62
Berkshire, Associates, com	12⅜	6½	8½
Berkshire Associates, pfd	40½	30	35
Bigelow-Sanford, com	24	...	...
Boott Mills	120½	70	...
Edwards	80¾	58	63
Esmond, pfd	98	95	99
Farr Alpaca	45	42	45
Hamilton Woolen	40	33	...
Hill	9	9	12
Indian Orchard	20½	16	20
Ludlow	107	110	113
Merrimack, com	35	20	23
Nashua, com	7½	6	8
Nashua, pfd	34½	31	35
Naumkeag	80	79	82
Newmarket	16½	15	...
Otis	45	45	50
Pacific	18	...	...
Pepperell	78½	75	78
Plymouth Cordage	60½	58	62
York	8¼	7	...

New Bedford Mill Stocks

(Sanford & Kelley, New Bedford)

	Bid	Asked
Acushnet Mill	4	....
Beacon Mfg., com	100	....
Beacon Mfg., pfd	80	85
Booth Mfg. Co., com	7	....
Booth Mfg. Co., pfd	22½	....
Bristol Mfg. Co.	10	....
City Mfg. Co.	4	....
Dartmouth Mfg. Co., com	...	31
Dartmouth Mfg. Co., pfd	78	....
Gosnold Mill, com	14	17
Gosnold Mill, pfd	36	....
Gosnold Mill Notes	....	95
Grinell Mfg. Co.	25	30
Hathaway Mfg. Co.	33	35
Holmes Mfg. Co., com	...	....
Holmes Mfg. Co., pfd	3⅜	4½
Kilburn Mill	9	11
Nashawena Mills	15	17½
N. B. Cotton Mills, pfd	12	14
Neild Mill	...	30
Nonquitt Mills	4	5
Pierce Mill	85	....
Potomska Mills	38	....
Quissett Mills, com	40	42
Soule Mill	...	65
Taber Mill	10	11
Wamsutta Mills	6¼	7
Whitman Mills, 6% Notes	5	7

Rayon Market Report

(Continued from page 57)

ness will end; others are not so optimistic and believe that this practice has "caught on" to such a degree that it will not be this easy for producers to stop it. It may be assumed however that when business conditions improve and more stability is apparent in other lines the wisdom of producing to meet this type demand will be more seriously questioned than now.

Both weavers and knitters are taking yarn actively and while forward deliveries are not called for in many cases, shipments to be made several weeks ahead are more numerous than heretofore. Deniers used in making rayon crepes are in as good demand as any in the market; cotton goods manufacturers are displaying fair interest and sellers are reporting a fair business in deniers used by underwear and hosiery trades.

QUOTATIONS

at close of business, May 13, 1931
Prices cover average qualities unless otherwise stated

Cotton Goods

	May 13	May 6	May 14 1930
PRINT CLOTHS			
27 -in., 64x60, 7.60	3½c.	3½c.	4⅛c.
38½-in., 64x60, 5.35	5c.	4⅞–5c.	6–6½c.
39 -in., 68x72, 4.75	5½c.	5½c.	6⅞–7c.
39 -in., 72x76, 4.25	6½c.	6½c.	7⅞–8c.
39 -in., 80x80, 4.00	6½c.	6½c.	8¾–9c.
BROWN SHEETINGS			
36-in., 54x60, 4.00	5½c.	5½–5⅝c.	7½c
36-in., 48x48, 3.00	5⅞c.	6c.	9–9½c
37-in., 48x48, 4.00	5c.	5c.	6½–6¾c
PAJAMA CHECKS			
36½-in., 72x80, 4.70	6¼–6¼c.	6 c.	6½–7 c.
36½-in., 64x60, 5.75	4¾–5 c.	5 c.	6½–6¼c.
MISCELLANEOUS			
Drills, 37-in., 3 yd.	6½c.	6½c.	9 c.
Denims, 2.20	12 c.	12 c.	15 c.
Tickings, 8 oz.	15½c.	15½c.	18–19½c.
Standard prints	7⅛c.	7⅛c.	9½c.
Eastern staple ginghams, 27-in.	8 c.	8 c.	10 c.

Cotton Waste

Peeler comber	8½– 8½
Peeler strips	7¼– 7¾
Sak. comber	7½– 8
Choice willowed fly	4 – 5
Choice willowed picker	3 – 4
Sak. strips	10½–11
Linters (mill run)	2½– 3½
White spooler (gingle)	6¾– 7

Cotton Yarn

CARDED (Average Quality)

Double Carded 2c.—4c. higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.17½	22s	$0.22
10s	.18	24s	.23
12s	.18½	26s	.24
16s	.19½	30s	.25
20s	20½–.21	40s ex.qual.	.35

TWO-PLY SKEINS AND TUBES

8s-2	$0.17½	26s-2	$0.23½
10s-2	17½–.18	30s-2	.24½–.25
12s-2	.18½	36s-2	.31
14s-2	.19	40s-2	.32½–.33
16s-2	.19½	40s-hi.brk.	.35
20s-2	.20–.20½	50s-2	.41
24s-2	.22½	60s-2	.48

SINGLE WARPS

10s	$0.18	24s	$0.23
12s	.18½	26s	.24
14s	.19	30s	.25½–.26
16s	.19½	40s.ex.qual.	.36 – .37
20s	.21		

TWO-PLY WARPS

8s-2	$0.17½	24s-2	$0.23
10s-2	.18	26s-2	.24
12s-2	.18½	30s-2	.25
14s-2	.19 –.19½	40s-2 ordin.	.33
16s-2	.19½–.20	50s-2	.41
20s-2	.20 –.20½	60s-2	.48

8s-3 and 4-ply skeins and tubes; tinged, 16½; white, 17½; waste, 15½–16

HOSIERY CONES (Frame Spun)

8s	$0.17	22s	$0.20½– .21
10s	.17 –.17½	24s	– .21½
12s	.17½–.18	26s	22 – .22½
14s	.18½	30s tying	.23½– .24
16s	.19	30s reg.	.25
18s	.19½	30s ex.qual.	.27 – .27½
20s	.20	40s	.33 – .34

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.31	60s-2	$0.49
30s-2	.35	70s-2	.60
36s-2	.37	80s-2	.73
40s-2	.39	90s-2	.87 – .89
50s-2	.45	100s-2	1.07 –1.09

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.32	60s-2	$0.50 – .52
30s-2	.36	70s-2	.60 – .62
36s-2	.38	80s-2	.72 – .74
40s-2	.40	90s-2	.88 – .89
50s-2	.45	100s-2	1.08 –1.10

SINGLES

12s	$0.26½	30s	$0.35
14s	.27	38s	.38
16s	.27½	40s	.39
18s	.28	50s	.44
20s	.29	60s	.50
24s	.31½	70s	.61
28s	.34	80s	.72

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0.49 – .50	90s-2	$1.28 –1.29
30s-2	.51 – .52	100s-2	1.58 –1.59
36s-2	.54 – .55	120s-2	1.98 –1.99
40s-2	.57 – .58	30s	.63
45s-2	.59 – .60	40s	.68
50s-2	.61 – .62	50s	.75
60s-2	.69 – .70	60s	.83
70s-2	.81 – .82	70s	.95
80s-2	.93 – .94	80s	1.15 –1.17

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed May 7	For Week High	For Week Low	Closed May 13	Net Chge.
May	9.74	9.98	9.62	9.63	—.11
June	9.84	10.01	9.72	9.72	—.12
July	9.95	10.12	9.81	9.81	—.14
August	10.09	10.24	9.92	9.92	—.17
September	10.24	10.37	10.04	10.04	—.20
October	10.33	10.56	10.15	10.15	—.18
November	10.44	10.58	10.26	10.26	—.18
December	10.56	10.79	10.37	10.37	—.19
January	10.66	10.90	10.48	10.48	—.18
February	10.75	10.91	10.57	10.57	—.18
March	10.85	11.07	10.67	10.67	—.18
April					

SPOT FLUCTUATIONS FOR WEEK

(Middling)

	New York	New Orleans	Liverpool
Thursday, May 7	9.85	9.52	5.38
Friday, May 8	10.00	9.70	5.39
Saturday, May 9	10.00	9.70	5.49
Monday, May 11	9.90	9.55	5.45
Tuesday, May 12	9.85	9.50	5.39
Wednesday, May 13	9.75	9.41	5.32

FOREIGN COTTONS

Egyptian Cotton

Alexandria Exchange, May 12		Change
May Sak	15.38	—0.07
June uppers	10.97	—0.21

May-June Shipment c. i. f. Boston
(Tariff not included)

Fully good fair Sak	18.40
Fully good fair to good Uppers	13.70

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	21
Peruvian Pima No. 1	20
Peruvian Moderate Rough	16
Peruvian Full Rough	21
China Tientsin No. 1	10½
India Rough	7 to 10
India Smooth	7 to 10

(By Bruns-Nordeman Co.)

BASIS MIDDLING

	Saturday, May 9	Saturday, May 2
10 markets average	9.43	8.92
Memphis	8.95	8.50

PREMIUM STAPLES

First Sales from Factors Tables at Memphis

Grade Strict Middling	Prices Steady
1⅛-in	12.15—12.40c.
1 3/16-in	13.35—13.60c.
1¼-in	17.75—18.25c.

CURRENT SALES

	For Week	Prev. Year	Week Before
Memphis total	8,668	7,417	7,466
F.o.b. included in total	5,915	6,231	6,224
10 markets	25,110	20,744	16,430

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	8,845	2,530	4,004
Gross receipts	20,954	13,745	13,175
Total since Aug. 1, net	635,534	918,413	838,669
Shipments	22,935	28,922	24,239
Total since Aug. 1	1,227,619	1,672,085	1,665,519
Total stock	214,523	272,691	154,609
Decrease for week	1,976	15,177	11,066
Unsold stock in hands of Memphis factors	18,400	41,687	
Decrease for week	3,364	1,407	

AVERAGE PRICE MAY-JUNE SHIPMENT
HARD WESTERN COTTON
F.o.b. New England

	Middling	St. Middling
1 1/16-in	12 –12½c.	12½–13c.
1⅛-in	12½–13½c.	13½–14c.
1 3/16-in	14½–15½c.	15½–16c.
1¼-in	20 –21c.	22 –23c.

Basis on New York.

SPOT FLUCTUATIONS AND STOCKS

Markets	Middling May 6	Middling May 13	Sales	Stocks This Week	Stocks Last Year
Galveston	9.70	9.60	3,066	546,560	234,895
New Orleans	9.45	9.41	4,124	707,606	415,178
Mobile	9.00	8.90	1,594	250,705	4,729
Savannah	9.26	9.17	1,195	361,044	42,723
Norfolk	9.69	9.56	1,481	79,070	53,725
New York	9.80	9.75	500	225,616	173,750
Augusta	9.25	9.19	850	78,757	66,922
Memphis	8.75	8.65	7,356	216,653	263,870
St. Louis	9.15	9.30		5,982	10,672
Houston	9.60	9.55	3,145	979,929	673,245
Dallas	9.10	9.05	2,663	8,539	12,235

DIFFERENCES ON AND OFF MIDDLING

	Dallas	Memphis	Montgomery	Augusta	Average
WHITE GRADES					
M. F	.75†	1.00†	.85†	.75†	0.88†
S. G. M	.60†	.75†	.75†	.63†	.70†
G. M	.50†	.50†	.60†	.50†	.52†
S. M	.35†	.25†	.35†	.25†	.31†
S. L. M	.50*	.50*	.50*	.50*	.50*
L. M	1.15*	1.25*	1.25*	1.25*	1.24*
S. G. O.**	1.80*	1.80*	2.25*	1.75*	1.96*
G. O	2.45*	2.05*	3.00*	2.25*	2.60*
YELLOW TINGED					
G. M	.40*	.75*	.50*	.50*	0.54*
S. M	.65*	1.00*	1.00*	.75*	0.89*
M.**	1.40*	1.25*	1.50*	1.25*	1.42*
S. L. M	1.90*	1.75*	2.15*	2.00*	1.99*
L. M.**	2.65*	2.00*	2.75*	2.75*	2.67*
YELLOW STAINED					
G. M	1.50*	1.50*	1.50*	1.25*	1.45
S. M.**	2.00*	2.00*	2.00*	2.00*	2.00
M.**	2.75*	2.50*	2.75*	2.75*	2.70
BLUE STAINED					
G. M.**	1.50*	1.50*	1.50*	1.50*	1.50*
S. M.**	2.00*	1.75*	2.00*	2.00*	1.98*
M.**	2.75*	2.25*	2.75*	2.75*	2.68*

**Grades not deliverable on contract. †On Middling
*Off Middling.

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA (IN GREASE)

Fine delne..	$0.25 –$0.26	¾ blood.....	$0.22 –$0.23
Fine clthg ..	.22 – .23	½ blood.....	21 – .22
¼ blood.....	.23 – .24		

TEXAS AND CALIFORNIA (CLEAN BASIS)

Texas, 12 months'..	$0.61 –$0.63
California, Northern	.51 – .53

PULLED—EASTERN (CLEAN BASIS)

A.A.	$0.68 –$0.70	B-Super...	$0.47 –$0.52
A-Super....	.55 – .58	C-Super...	.42 – .45

MONTANA, IDAHO AND WYOMING (CLEAN BASIS)

Staple fine	$0.63 –$0.65
Staple ¾ bld	.58 – .60
Fine and fine medium	.58 – .60
¾ blood	.48 – .50
½ blood	.42 – .45

MOHAIR—DOMESTIC

Best carding	$0.23 –$0.25
Best combing	.31 – .33

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.16 –$0.19
Cape firsts	.18 – .20

FOREIGN CLOTHING AND COMBING (CLEAN BASIS IN BOND)

Australia:	
70s	$0.52 –$0.55
64s	.45 – .48
58s-60s	.41 – .43
(IN GREASE)	
Montevideo:	
58s-60s	$0.19 –$0.20
56s	.18 – .19
50s	.16 – .17
Buenos Aires:	
4s, 40-44s	$0.14 –$0.15
5s, 36-40s	.13 – .14

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo washed	$0.22 –$0.24
China: Combing No. 1	.13 – .14
China Filling Fleece	.12 – .14
Szechuen ass't	.12 – .14
Cordova	.14 – .15
Scotch black face	.15 – .17
East India: Kandahar	.17 – .19
Vican'r	.23 – .25
Joria	.23 – .24

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.77½–0.80
2-24s 40s	.... – .85
2-26s 44s	.87½– .90
2-28s 46s	.92½– .95
2-30s 48s	– .95
2-32s 50s	.97½–1.02½

(Single yarns 5c. less than above)

2-36s,'58s	$1.22½–1.25
2-40s,'60s	....–1.32½
2-40s, 64s	1.35 –1.37½
2-50s, 66s	1.50 –1.52½
2-60s, 70s	1.85 –1.87½

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.75 –0.77½
2-20s, 48s in oil	....– .80
2-20s, 50s in oil	.80 – .82½
2-20s, 56s in oil	.92½– .95
2-20s, 60s in oil	1.10 –1.12½
2-20s, 64s in oil	1.20 –1.25
1-18s, 46s dyed	– .97½
1-18s, 48s dyed	–1.00
1-18s, 50s dyed	–1.02½

(Oil yarns 17½c. less)

FRENCH SYSTEM

1-20s, 58s	$1.07½–1.10
1-20s, 60s	1.12½–1.15
1-18s, 64s, dyed	1.37½–1.40
1-26s, 64s	1.17½–1.20
1-30s, 60s, Warp	1.22½–1.25
1-30s, 64s, Warp	1.25 –1.27½
2-30s, 64s, Fancy mixes	1.45 –1.47½
2-40s, 64s, Zephyrs	1.37½–1.40
1-50s, 66s	1.47½–1.52½
2-50s, 66s	1.55 –1.57½
1-60s, 70s	1.85 –1.87½
2-60s, 70s	1.90 –1.95

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$1.00 –1.02½
1-40s, 50-50-60s on cops	1.15 –1.17½
1-40s, 50-50-64s on cops	1.17½–1.20
1-40s, 50-50-64s Australian cops	1.20 –1.25

Underwear mixes, 3c. additional.
Solid color, 35c. additional.

◆

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.83–$0.85
Half-blood (60-62s)	.78– .80
High ¾ blood (58s)	.68– .70
Aver. ¾ blood (56s)	.63– .65
Low ¾ blood	.60– .62
High ½ blood (50s)	.55– .58
46s S. A. and N. Z.	.51– .55
44s S. A. and N. Z.	.50– .52
40s S. A. and N. Z.	.48– .50

TOPS—BRADFORD, ENG. (MAY 8)

Fine (70s)	27 d	¾ bld. (56s)	16½d
Fine (64s)	23 d	½bld. (50s)	14 d
¾ bld. (60s)	23 d	Cross-bred (46s)	11½d
¾ bld. (58s)	20 d		

NOILS—BOSTON

Fine	$0.43–$0.45	High ½ bld.	$0.33–$0.35
Half-bld	.40– .42	Low noils	.31– .33
Aver. ¾ bld.	.35– .38	Medium colored	.25– .30
Fine colored.	.33– .38		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.65 –$0.68
Lap, fine colored	.48 – .52
Hard ends, fine white	.52 – .55
Hard ends, ¼ blood white	.35 – .38
Hard ends, fine colored	.25 – .27
Hard ends, medium colored	.18 – .20
Card, fine white	.25 – .28
Burr, fine Carbonizing	.28 – .30

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.04½–$0.05
Merinos, Fine Dark	.03½– .04
Merinos, Fine Light	.10½– .11
Serges, Blue	.06 – .06½
Serges, Black	.06 – .07
Serges, Red	.08 – .09
Knit, White	.23 – .24
Knit, red	.10½– .11
Knit, Light Hoods	.11½– .12½
Worsted, Light	.05 – .05½
Worsted, Blue	.06½– .07
Worsted, Black	.06½– .07

Silk Yarns

THROWN SILK (60 day basis)

	Nominal
Japan organzine, 2 thd. spec. gd. XX. sk. 85%	$3.85
Japan organzine, 2 thd. sp. crack. sk. 81%	3.45
Japan crepe, 3 thd. gd. XX bob. 83%	3.60
Japan crepe, 3 thd. sp. crack. bob. 81%	3.50
Japan crepe, 4 thd. crack bobbins, 78%	3.40
Japan grenadine 4 thd. sp. grand singles, 87%	4.95
Japan grenadine 4 thd. 85%	4.70
Japan grenadine 3 thd. 90%	5.75
Canton crepe, 3 and 4 thd. ns. 14/16 on bobbins	2.30
Hosiery tram, 3 thd. Japan 90%	4.60
Hosiery tram, 5 thd. Japan, 85%	3.55
Hosiery tram, crack XX 78%	3.00

SPUN SILK YARNS (Terms: net 30)

40/2	$3.20	60/2	$3.50
50/2	3.30	62/1	2.35

Raw Silk

(60 Day Terms. Spot Goods.)

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 86/88%	$3.05	$2.35	$2.30
Special Grand, 85%	2.75	2.25	2.20
Grand XX, 83%	2.60	2.20	2.15
Special Crack, 81%	2.40	2.15	2.10
Crack XX, 78%	2.30	2.10	2.05
Extra Extra, 73%	2.20	....	....
Best Extra, 68%	2.15	....	....

Canton filature, new style, 14/16	$1.45
Canton filature, new style, 20/22	1.35
Tussah filature, 8 cocoon	1.00

NATIONAL RAW SILK EXCHANGE

	Close May 6	For the Week High	Low	Close May 12	Net Chang
May	2.22	2.23	2.14	2.14	—0.8
June	2.21	2.21	2.15	2.15	—0.6
July	2.19	2.19	2.14	2.14	—.05
August	2.19	2.19	2.14	2.14	—.05
September	2.19	2.19	2.15	2.15	—.04
October	2.19	2.19	2.15	2.15	—.04
November	2.19	2.19	2.15	2.15	—.04
December	2.19	2.19	2.15	2.15	—.04

Total contracts, 744. Total number of bales, 7,440.
Total approximate value, $2,301,196.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	First	Second
50	14	$2.15	$1.95
75	18–30	1.35	1.25
100	18–40	1.10	1.00
125	36–50	1.00	.90
150	30	.70	.67
150	40	.75	.72
150	60	.85	.82
150	75–90	.85	.82
170	24–27	.75	.72
170	60	.85	.82
200	30	.75	.72
200	35–42	75	.72
300	42–62	.63	.60
450	54–60	.63	60
600	72–96	.63	.60
900	100–144	.63	60

Note: So-called "obsolete" yarns, 150/24 and 150/30, still available at 65c.

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.35	$1.25	150	$0.75	$0 72
100	1.05	.95	175	.75	.72
125	.95	.85			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	65	45	$2.00
25	24	2.85	80	60	1.70*
30	24	2.60	100	75	1.35
40	30	2.40	120	90	1.22
52	30	2.20	150	112	1.10
			180	135	.97

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.25 2.75	120	$1.90
55	2.05–2.55	140	1.30
65	2.45	150	1.40–1.85
75	1.80–2.70	200	1.55
100	1.65–2.45	300	1.50

Rayon Waste

Open bleached waste	$0.13½–$0.14
Open unbleached waste	.11½
Bleached thread waste (mfs.)	.10
Bleached thread waste (misc.)	.07– .08
Colored thread waste	.05
Colored clips	.05

CONVERTED RAYON WASTE

Bleached tops	$0.30–0.33
Unbleached tops	.29– .30
Bleached noils	.12
Bleached garnetts	.13
Unbleached garnetts	.14
Colored garnetts	.11– .12

Silk Waste

Kibizzo Kakai Grand XX	$0.54
Kibizzo Kakai Triple Extra	.48
Frison Grand Double	.52½
Pierced Cocoons	.53

Survey of Full-Fashioned Hosiery Stocks Completed

AN ANALYSIS of stocks of women's full-fashioned hosiery has been prepared by the Industrial Research Department of the University of Pennsylvania. It was compiled in cooperation with the National Association of Hosiery and Underwear Manufacturers under the direction of George W. Taylor.

It was found that stocks declined by approximately 25% from the end of February, 1930, to end of same month this year, dropping from the peak of 5,000,000 to 3,750,000 doz., prs. A stock of 3,500,000 should not be exceeded, the survey states, unless shipments and orders rise to higher than 1929 levels.

The analysis shows that four different periods have lately been experienced by the full-fashioned hosiery industry in respect to stocks. The first was from 1926 to 1927 in which rapid stock increases were due to the spread of hand-to-mouth buying methods which placed the stock burden on the mill, in addition to an increasing scale of business in general.

From 1927 to 1929 stock increases, the survey shows, were large but business was expanding rapidly at that time. The ratio of stock to shipments shows that stock increases in this period were largely to take care of expanding business.

The third period was from 1929 to 1930 when the increase in stocks occurred because of unduly large production in the face of decreasing orders. A further extension of hand-to-mouth buying contributed in the accumulation of large stocks at the mills. In this period stocks really got out of line, the survey shows, by increasing at a time when orders were going in the opposite direction. It was at this time that manufacturers, had they been wise, would have practiced rigid control of production. The fourth period, 1930 to 1931, finds stocks decreasing due to production control.

Curtailment Helped Trade

The survey says that too much credit cannot be given to those manufacturers who followed the advice given in 1930 by the National Association that they should produce only to meet orders. These manufacturers were responsible for the 25% reduction in stocks since February, 1930, the survey states.

The full-fashioned industry has expanded at so rapid a rate that it is natural to look for a growth in stocks. During the years 1925 and 1926 monthly production varied from 1,000,000 to 1,500,000 doz. prs. Production went up to 2,750,000 in 1929. The survey says that to be healthy the industry should expand at a faster rate than stocks.

Annual production of full-fashioned fell to 25,000,000 doz. prs., in 1930 as compared with 27,000,000 the previous year. This change was brought about by a partial check to the decline in shipments as well as by curtailment among manufacturers.

Kempf New Export Head

At a meeting on May 13, A. G. Kempf, Neuss, Hesslein & Co., New York, was elected head of the Textile Export Association, the office filled for the last 12 months, which were the first year of the organization's existence, by Floyd Jefferson, president, Iselin-Jefferson Co., New York. The board of directors elected Walter S. Brewster, of Pacific Mills, vice-president; F. A. Colt, of Cotton-Textile Institute, secretary; Perry S. Newell, of the Association of Cotton Textile Merchants of New York, treasurer, and Norman E. White assistant secretary.

Where Full-Fashioned Machines Are Located

Pennsylvania still holds a dominating position in the full-fashioned hosiery trade, according to a statistical folder that has been prepared by the Textile Machine Works, Reading, Pa. It shows that of the total of 16,400 full-fashioned machines in this country, located in 26 States, 58% are in Pennsylvania. The second largest number is found in the western States which have 13%.

The southern States have a total of 11.5% of the total of the United States; New Jersey has 8%; New York has 7.7% and New England 2.5%.

Of the 16,400 full-fashioned machines the largest percentage, 47%, is of 42 gauge; the next largest is 45 gauge with 28%; the next, 39 gauge, which a few years ago held the leading position in the industry, is only 16%. The folder shows that rayon is not making great strides in full-fashioned goods, only 5% of the full-fashioned being made of rayon while 90% is made from silk. In seamless 48% is made of cotton, 25% of rayon, 15% of silk and the remainder is made up of mixtures.

Silk Market Survey to Begin Soon

Details of the research program of the Silk Association of America, Inc., which was announced in the May 2, 1931, issue of Textile World, have been revealed by the association, following a meeting of the survey committee held at the association headquarters New York. The program which is a comprehensive one, embraces all branches of the silk industry, including machinery, manufacturing, styling and selling.

Those present included Thomas B. Hill, president of the association; Fred W. Shibley, vice-president of Bankers Trust Co., advisor to the committee; Ramsay Peugnet, secretary of the association; Ewald H. Schniewind, Susquehanna Silk Mills; B. Edmund David, B. Edmund David, Inc., Paul Hyde Bonner, Stehli Silks Corp.; and George G. Sommaripa, economist, Silk Association.

"Collection and analysis of market facts which will permit recommendations to the industry for the betterment of trade conditions, is the aim of this survey," Mr. Hill stated. "Many phases of the industry about which little specific and accurate information has hitherto been available will be studied. These include especially cost methods and the problem of distribution.

"Many changes which need more detailed study than they have been accorded have taken place in the silk industry in recent years. The silk manufacturer is no longer a mere weaver of fabric. He has had, of necessity, to become a stylist, a merchandiser, and a competent cost accountant. He must gage his market carefully, use initiative in styling, and be keenly alert to consumer tastes."

Phi Psi Holds Successful Convention

The Phi Psi textile fraternity held its 28th annual convention at the Bradford Arms Hotel, Sagamore, Mass., on May 8, 9 and 10.

Friday evening was devoted to reunions and a dinner of greeting at which the Historian, William J. Fitzpatrick of Brown-Durell Co., Boston, Mass., showed moving pictures of the last five conventions. Saturday morning was devoted to a general business meeting which was attended not only by Alumni Members but delegates from the following active Chapters: Philadelphia Textile School, Lowell Textile Institute, Bradford Durfee Textile School, Clemson College, Raleigh State College, and Georgia Tech.

Edwin N. Ferrell of Hahn Department Stores, Boston, was re-elected treasurer for three more years. The retiring vice-president, John H. Grady of John Campbell Co., Boston, was succeeded by Harold Cochrane of the Fitchburg Yarn Co. The retiring editor-in-chief of the *Quarterly*, Theodore H. Thomas of the investment banking concern, H. L. Harris & Co., Inc., was succeeded by J. Alden Miller, Jr., treasurer, Miller Mfg. Co., Taylorsville, N. C. Rudolph C. Dick, vice-president and treasurer of Louisville Textiles, Inc., was appointed business manager of the *Quarterly*. Also at this meeting Mr. Thomas was presented with a Grand Council Key in appreciation of his services for the last three years.

Saturday afternoon was devoted to trips around the surrounding country to historical points of interest and the convention was officially closed Saturday evening with a banquet.

Cottons for Summer Wear Described

The Flashes of Fashion bulletin issued by The Cotton-Textile Institute, Inc., features cotton dress materials for summer in its latest issue. It called attention to the fact that one-fifth of all the

clothes shown at the Garment Retailers Show were made of cottons. Nor was it simply a question of number but, the bulletin states that cottons attracted most comment for style at that exposition. The numerous fabrics particularly adapted for summer and resort wear are emphasized in it with types of garments shown featuring the various new cottons.

B. B. Gossett to Address Annual Meeting of S.T.A.

The annual meeting of the Southern Textile Association, which will be held at the Isle of Palms, near Charleston, S. C., June 12 and 13, will be featured by an address by B. B. Gossett, first vice-president, American Cotton Manufacturers Association. The tentative program announced recently is, as follows:

Friday morning: Addresses.

Friday afternoon: Golf tournament and other outdoor sports.

Friday evening: Banquet; quest speaker: B. B. Gossett; humorous address: Dr. Ashley Chappell, Monroe, N. C.; also a "Cotton Ball" in cooperation with current "Wear Cotton" campaign, with prizes for best costumes.

Saturday morning: Business Session.

No green fees will be charged members of the association for the golf tournament which will be held either at the Municipal or Charleston Country Club. This event will be under the direction of W. B. Uhler, Spartanburg, S. C. All room reservations are being handled through the Isle of Palms Hotel, Isle of Palms, Charleston, S. C. The rate is $6 per day including meals.

Successful Constructions for Bedford Cords

(Continued from page 28)

that it is not possible to use any wadding ends. Wadding ends are used only in the wider wales, one end of 2/30s being sufficient to give the wider wale a well rounded appearance.

Not many Bedford cords are made with the wales as wide as in Fig. 6. The most popular widths are such as are shown in Fig. 3, which is 26 wales per inch. It is difficult to produce a well-rounded cord or wale if the wales run over ten per inch, because the depressing power of the plain-weaving ends is not equal to rounding out a much wider wale, no matter how many and how heavy the wadding ends may be.

Dry Goods Convention

Topics vital to business will be discussed at the initial general convention of the Controllers' Congress, store managers' division, personnel and traffic groups and Retail Delivery Association of the National Retail Dry Goods Association to be held in Washington, Mayflower Hotel, May 25 to 28 inclusive.

Textile Chemists of Georgia and Alabama Decide to Organize

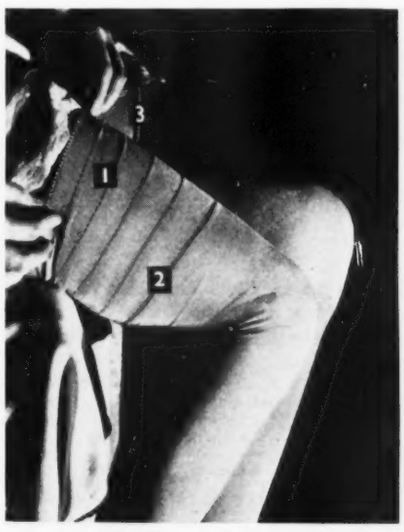
TEXTILE chemists, dyers, bleachers and finishers of Georgia and Alabama in an organization meeting held at the Georgia School of Technology, Atlanta, Ga., May 9, decided to form a permanent group which will either function as an independent technical society or affiliate with some established association.

For the purpose of studying the situation and preparing a constitution and by-laws for the new society a committee was elected, as follows: C. B. Ordway, Alabama Polytechnic Institute, Auburn, Ala.; M. T. Johnson, Hillside Cotton Mills, LaGrange, Ga.; C. A. Jones, Georgia School of Technology, Atlanta, Ga., E. A. Feimster, Jr., Eagle & Phenix Mills, Columbus, Ga.; Wycliffe C. Jackson, Lowell Bleachery South, Griffin, Ga.; and W. F. Christman, Russell Mfg. Co., Alexander City, Ala.

This committee was authorized to recommend a permanent form of organization, whether or not the group should be affiliated with any other association, and to draft a constitution and set of by-laws. Another committee consisting of C. B. Ordway, E. A. Feimster, Jr., C. A. Jones and M. T. Johnson, was named to arrange a program and select date and place of first regular meeting.

Hibbard S. Busby, director, A. French Textile School, Georgia School of Technology, acted as chairman of the meeting and outlined some of the problems peculiar to southern textile chemists and dyers. Among the objects suggested as falling within the province of the new organization were: (1) the coordination of practical research in the South in order to provide the maximum benefit to southern mills, textile schools and their representatives; (2) the development of a concerted effort to obtain funds from outside sources for the financing of research work, and also to serve as an agency for the raising of such funds in the South; (3) to hold periodic meetings at centrally located points and provide technical programs of interest to dyers, chemists, bleachers and finishers in that territory; and (4) to further the interest of its members by establishing a circulating library and by creating an employment service.

It was pointed out that mills would benefit directly by the increased efficiency of members in the association and also, if an employment bureau were established, by having expert chemists and dyers recommended for positions by a technical association, thus avoiding the possibility of employing a man who is obligated to a manufacturer of chemicals or dyestuffs. In discussing the future of research work in this country, it was emphasized that work on cotton and rayon should be located largely in the South, in view of the geographical location of these industries.



Gotham adjustable length stocking with 7 inches of top and 5 rows of hemstitching

Gotham Adjustable Length Stockings

Gotham "Adjustables" made by the Gotham Silk Hosiery Co., New York, were featured nationally this week. This new stocking, trade-marked with patents pending, has created a stir in hosiery circles and with the public who saw the stocking this week at retailers for the first time. Briefly it is a stocking, as its name implies, that may be adjusted properly to fit a tall, medium or short women without any of the disadvantages that were formerly encountered. There is a generous 7 inches of adjustment space. Each of the hemstitchings seen in the photograph is not merely an adjustment stripe for the use of the short, medium or tall wearer but also serves as a run stop. Each stripe also serves as a picot top and the garter clasps may be fastened anywhere. Points emphasized by numbers in the photograph are:

1. Seven inches of adjustment space —to fit every length of leg.

2. Five run-stops—and each forms a perfect picot top.

3. New comfort. No binding, twisting, bunching or wrinkling at top.

Allen-A Adopts Unusual Selling Idea

The Allen-A Co., Kenosha, Wis., has adopted a complete merchandising plan aimed to help retailers increase their sales volume. The Allen-A Co. is running a page advertisement in the *Saturday Evening Post*, May 16, which is expected to create a consumer demand for the men's shirts and shorts to be featured. This campaign is an example of the new merchandising policy that has been adopted by the Allen-A Co., and is indicative of the new selling methods apparent throughout the entire textile industry.

A Wool Protest on Government Endorsement of Cotton Week

Prompted by Charles F. H. Johnson, president of the Botany Worsted Mills, Passaic, N. J., Rep. Seger, of New Jersey, took issue this week with Secretary of Commerce Lamont and Secretary of Agriculture Hyde on their endorsement of National Cotton Week, June 1 to 7. Mr. Johnson asserted that participation of the government departments in the campaign sponsored by the cotton trade organizations was a "rank injustice to the thousands of wool manufacturers whose livelihood depends on the sale and consumption of wool materials."

Rep. Seger's protest brought a prompt reply from the Department of Commerce in defense of its policy. Edward T. Pickard, chief of the Textile Division, stated that while the department derived specific authority from legislation authorizing it to promote measures for extending the use of cotton, it would endorse just as cordially a National Wool Week in the event that such an event were established.

Select Coat and Dress Colors for Fall

The final selection of basic coat and dress colors for the coming fall has been made by the Color Coordination Committee of the National Retail Dry Goods Association, after several meetings with the Textile Color Card Association and members of its official committees.

The basic coat colors selected are Afrique, Biskra Brown, Kiltie Green, Malaga Red and Bleu Marine.

The silk dress shades coordinating with the above are: Annamese Brown, Kiltie Green, Cassis and Admiralty. An additional silk dress shade in the rust family is Algerie.

The wool dress colors are La Playa, Algerie, Ambertone, Tropic Green, Colonial Red and Yankee Blue.

Printers Announce New Percale Prices

On Wednesday, May 13, the corporation printers announced lower prices on percales for fall delivery. These became effective that day, and place percales on a basis of 12¼c. for 80-squares. Among those naming new prices were Fruit-of-the-Loom Mills, Consolidated Selling Co., and M. C. D. Borden & Sons, Inc. Pacific Mills in showing new lines stated that percale prices were subject to change without notice.

J. W. Cox, Jr., Cooperating in "Wear Cotton" Movement

James W. Cox, Jr., president of Sibley Mfg. Co. and of Enterprise Mfg. Co., both of Augusta, Ga., has been cooperating in the "Wear Cotton" movement which has been progressing in that city as well as in other sections of the South. In addition to offering to set up looms as part of an operating exhibit, he has presented the heads of various civic organizations with cotton suiting material made in his plants. Mr. Cox, who went to Augusta last fall as vice-president in charge of operations, was recently elected president of both Enterprise and Sibley.

Cotton Standards Conference Scores Farm Board Operations

Foreign delegates to the international conference on cotton standards urged the Department of Agriculture May 12 to take measures for improving the quality of the American product. There was some complaint concerning oil-soaked bales and the presence of jute fibers which show up in the yarn. It was apparent, however, that the system whereby all trading in American cotton is done on the basis of universal standards is meeting with the satisfaction of all concerned.

European traders and spinners may argue that ginning is poor and this they did in a mild way but they were far more outspoken in their criticism of the Federal Farm Board, claiming that alleged manipulation by the board is restricting export trade in cotton. There was some discussion on the proposal to establish preparation standards for long staple cotton but no decision was reached.

The sets of copies of the universal standards, which were prepared by cotton classers of the Department of Agriculture for the use of the European cotton associations during the two-year period beginning Aug. 1 next, were approved without exception and the "key" set was sealed and placed in the vault in the U. S. Treasury on May 13.

Seidman Heads Textile Brokers

George Seidman of Heineman & Seidman, cotton goods brokers, was elected president of the Textile Brokers' Association at a meeting of the board of governors held at the association office, New York, May 12.

J. H. Tracy of Tracy, Lyons & Co., was elected vice president, Harry Strauss was chosen treasurer and Louis Lowinson of Lowinson & Hussey, secretary.

Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended May 9, based upon data compiled by the Department of Agriculture, follow:

	Week Ended May 9	Total to Date 1931	Total to Date 1930
Domestic	2,790,000	33,236,000	30,018,000
Foreign	1,626,000	21,463,000	32,996,000
Total	4,416,000	54,699,000	63,014,000
IMPORTS AT PRINCIPAL PORTS			
Boston	1,626,000	21,463,000	32,996,000
Philadelphia	1,052,000	15,547,000	24,986,000
New York	473,000	20,253,000	22,514,000
Total	3,151,000	57,463,000	80,496,000

Hext Perry Succeeds the Late Luther M. McBee, Jr., as Purchasing Agent

Hext Perry, Greenville, S. C., who has been connected with the Detroit Graphite Co., for 13 years, recently resigned to succeed the late Luther M. McBee, Jr., as purchasing agent for approximately 75 southern textile mills. Mr. Perry is well known in textile circles throughout the South, and will continue to make his headquarters in the Woodside Building. His wide sales experience in the textile industry serves to make Mr. Perry well qualified for his new position.

New York Has New $3,000,000 Textile High School

New York City has recently erected a $3,000,000 Textile High School at 351 West 18th Street. It offers both day and evening classes in all branches of textiles, free of charge. It is well equipped and stresses particularly its courses on manufacture of yarn, on manufacture of knitted fabrics and on operation and repair of knitting machines. The school operates under William H. Dooley, principal, who has for many years directed this department of the city's educational system.

Issues Samples of Cotton Stationery

The Cotton-Textile Institute has issued a sample booklet showing cotton fabric stationery which is now available for business and social correspondence and for many forms of printed matter. Prices and sizes available are given together with name of manufacturer. There are 13 manufacturers represented. The Institute also reports a recent announcement to the effect that the William Wrigley Co., Chicago, had purchased 800,000 sheets of cotton letterheads from one of the companies listed.

Urges Quality Maintenance

Cartter Lupton, president of the Dixie Mercerizing Co., Chattanooga, Tenn., raised the point in an interview at Chattanooga recently that the time has come in the economic depression period when manufacturer, wholesaler and retailer can no longer pursue a "bargain sale without quality standard program save with suicidal intention."

Mr. Lupton pointed out that the American public is distressed about bad times, "probably unduly and unsoundly distressed," but that it is "up to American Business not to dig the knife deeper by the constantly bad psychology of depressed advertising and obviously scared promotional activities."

"Pursuing a quality-maintenance, production-stabilization, styling improvement campaign in the midst of a contest between producing and consuming bargainers, has not been simple for the Durene Association, but it has

been sound. Cooperating manufacturers have been able to put machines to work on yarn quality-defined and yarn quality-guaranteed merchandise to be sold at fair and uncut profits. In many cases these looms and these knitting and sewing machines were anticipated by their owners to be dead losses for the year. They were turned to profitable usefulness. The public has received with something approaching a sigh of relief the promotion of quality guaranteed Durene merchandise. America has too long followed the road of improved production to take permanently to the disintegrating policy of decreased quality."

Dry Goods Market Surveyed in Gulf Southwest

One of the most extensive analysis of a large dry goods market ever undertaken has been completed by the Department of Commerce in seven states of the Gulf Southwest. The survey comprises wholesale and retail marketing and distribution outlets in this area with almost one-half billion dollars in net sales.

The study was conducted by Edward F. Gerish, Chief of the Domestic Regional Division of the Department with the cooperation of wholesalers and retailers in the Gulf Southwest, the National Retail Dry Goods Association and the National Wholesale Dry Goods Association, and is in line with the efforts of the Bureau of Foreign and Domestic Commerce to provide accurate data upon which merchants and manufacturers may base methods of efficient marketing. It has been published in booklet form.

Seventy-two wholesale houses with net sales of over $120,000,000, 376 retail stores with net sales of nearly $251,000,000 and 21 chain systems having 436 retail outlets in this territory with net sales of $162,000,000 were studied by the Bureau of Foreign and Domestic Commerce.

Womens' wearing apparel and hosiery representing 13% of the sales was revealed in the study of 111 stores analyzed by departments; men's clothing, 4.27%; piece goods, 3.63%; and men's furnishings, 3.49%.

Fifty per cent of all business in these retail stores was found to be on a cash basis, credit representing 44% with installment buying only 6%. The report shows that the ratio of cash to open credit and installment sales depends upon the character of the population and income, and upon the prevalence of large stores catering to charge accounts and selling merchandise that lends itself to installment methods.

Stores with sales volume of less than $250,000 had the lowest ratio of returns and allowances, while the ratio constantly increased with the increase in sales volume. Returns and allowances for all stores amounting to 4.7% of gross sales. The report reveals that the retail stores of this area spent over $10,000,000 in advertising which represents 4.32% of their sales volume.

An interesting fact brought out as a result of this survey is that the largest single item of expense of wholesale dry-goods houses was sales-force expense. The average sales force expense for firms doing over a $1,000,000 business was 4.74% of net sales; for those doing under that amount 6.34% of net sales.

Net profit is shown for wholesale firms doing over $1,000,000 business as 3.9% of net sales, as against 3% for those doing less than that amount.

Silk Yarn Firm Moves

General Silk Importing Co., formerly at 2 Park Ave., New York, has moved to new quarters at 501 Seventh Ave., New York.

Lipps-Hamil in New Offices

Lipps-Hamil, Inc., formerly located at 49 East 34th St., New York, have moved their main offices to 527 Fifth Ave., Harriman National Bank Bldg., New York.

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Business News

Charles B. Johnson to Move Plant to Larger Quarters

Charles B. Johnson, Paterson, N. J., manufacturer of the Johnson warp sizer, is about to move into a larger plant. The Government recently condemned the old site of the Johnson plant at 10 Ramapo Avenue for the new Paterson Postoffice and the trend of Mr. Johnson's business has been such as to make this opportunity for expansion welcome.

The new home of the Johnson improved warp sizer is a modern, daylight, concrete building, located at Piercy St., corner of Holsman Avenue, formerly the property of the National Silk Dyeing Co.

William Johnson, general manager of the concern, stated, "We have been so cramped for space for several years that we have often discussed the question of moving to larger quarters. With the coming of the new Postoffice, however, we have been absolutely compelled to make this move. It is merely another indication of consistent growth over many years, due to specialization in the manufacture of one type of machine. This firm makes only the Johnson warp sizer."

Mr. Johnson has extended an invitation to the trade to visit his plant at any time after June 1, when the plant will be thrown open for inspection.

Minneapolis-Honeywell Moves Its Chicago Office

Minneapolis-Honeywell Regulator Co., Minneapolis, has removed its Chicago office from 672 Wrigley Building to 2065 Daily News Building at 400 W. Madison St. W. G. Jennings is the resident vice-president.

Westinghouse Elects Officers

At the organization meeting of the board of directors of the Westinghouse Electric & Mfg. Co. held April 29, the following officials were elected: A. W. Robertson, chairman of the board; F. A. Merrick, president; J. S. Tritle, vice-president in charge of manufacturing; S. M. Kintner, vice-president in charge of engineering; W. S. Rugg, vice-president in charge of sales; L. A. Osborne, H. P. Davis, H. D. Shute, J. S. Bennett, H T. Herr, Walter Cary, T. P. Gaylord, and Harold Smith were re-elected vice-presidents. C. H. Terry was elected an honorary vice-president. E. M. Herr was re-elected vice-chairman.

C. H. Adamson to Head Stephens-Adamson Conveyor Sales in Chicago

Stephens-Adamson Mfg. Co., conveyor and screen manufacturer, Aurora, Ill., has enlarged its Chicago office and moved to new quarters in the Civic Opera Building at 20 North Wacker Drive. C. H. Adamson, secretary of the firm, will be in direct charge of sales and engineering for the Chicago territory. He has been director of all Stephens-Adamson advertising and sales promotional work for many years.

J. D. Malcolmson of Robert Gair Co. Appointed to Simplification Body

J. D. Malcolmson, of the Robert Gair Co., has been appointed a member of the standing committee in charge of recommendations on folding and corrugated boxes under the Division of Simplified Practices of the Department of Commerce. Mr. Malcolmson is the manager of the research engineering department of the Robert Gair Co., 420 Lexington Avenue, New York City, and prior to joining the Gair company devoted several years to research work in paper products at the Mellon Institute, Pittsburgh.

Blaw-Knox Acquires Rights on Ateco Earth-Moving Line

The Blaw-Knox Co., Pittsburgh, Pa., has acquired the exclusive sales and manufacturing rights of the Ateco line of earth-moving machinery from the American Tractor & Equipment Co., Oakland, Calif., for the United States east of the Rocky Mountains and for all other countries. The line includes hydraulically operated earth movers, bulldozers, scarifiers, tamping rollers and combination outfits.

R. H. Bacon Heads F-M Pump Division

Fairbanks, Morse & Co. has announced the appointment of R. H. Bacon, former advertising manager for the company, as manager of the pump sales division with headquarters in Chicago. Mr. Bacon has been associated with the company since 1925 when he took charge of publicity for the Diesel engine division. Shortly thereafter he was placed in charge of general publicity and since 1929 has been manager of the Advertising and Publicity Dept.

David Lupton's Detroit Office Now in General Motors Building

David Lupton's Sons Co., steel window products, has located its Detroit office at 5-130 General Motors Building.

International Filter Moves General Office

International Filter Co. has located its general office at 59 East Van Buren Street, Chicago. The company's laboratory remains at its No. 1 plant, 329 West 25th Place, Chicago.

NEWS about MEN

✦ CHARLES A. CANNON, head of the Cannon Mills Co., Concord, N. C., is among the members of American Cotton Manufacturers' Association who are attending the international biennial universal cotton standards conference in Washington, D. C., together with SIDNEY BLUHM, Greensboro; HENRY ROEDIGER, Danville, Va., and W. M. MCLAURINE. W. A. FLOYD and E. W. MONTGOMERY will represent the South Carolina Cotton Manufacturers Association and A. J. KELLY and J. B. KANE will represent the Cotton Manufacturers of Georgia at the gathering.

✦ C. F. JAMES, president of Elizabeth James Mills, Marion, N. C., has been elected president of the chamber of commerce of Marion.

✦ J. CHOICE EVINS, president and treasurer of the Clifton Mfg. Co., and HENRY M. CLEVELAND, Spartanburg, S. C., banker and executive of the Arkwright Mills, have been elected trustees of Converse College, Spartanburg, S. C., a leading woman's college of the Southeast. Mr. Evins was chosen chairman.

✦ JOHN A. LAW, Spartanburg banker and president of the Saxon Mills and the Chesnee Mills, attended the recent meeting of the Textile Foundation, held in New York City; also the convention of the United States chamber of commerce, held at Atlantic City. At the latter convention Mr. Law was one of two southern men appointed on the committee on resolutions.

✦ DR. ERNEST LUNGE has resigned from the board of directors of Courtaulds, Ltd., London, upon medical advice following an absence of seven months from business because of illness. His successor has not yet been appointed.

✦ W. E. WINCHESTER, of New York, was added to the board of directors of the Gainesville (Ga.) Cotton Mills to succeed F. J. HALE, of Boston, resigned, at the annual stockholders' meeting held in Gainesville last week. The officers were elected without change as follows: G. H. MILLIKEN, president; H. A. HATCH, vice-president; VICTOR M. MONTGOMERY, secretary and treasurer; V. M. MONTGOMERY, JR., secretary-treasurer.

✦ S. H. WILLIAMS, technical expert, General Dyestuff Corp., recently gave lectures and demonstrations on the AS type napthols and vat dyes before the senior classes of the Clemson College (S. C.) Textile School.

✦ WILLIAM L. RICKETTS of Ricketts & Shaw, Monson, Mass., has been elected a vice-president and clerk of the Monson Savings Bank. FRANK J. ENTWISTLE, secretary of A. D. Ellis Mills, Inc., Monson, was also elected an auditor of the same bank.

Textile Calendar

Chattanooga Yarn Association, Annual Golf Tournament and Outing, Chattanooga (Tenn.) Golf & Country Club, May 21 and 22, 1931.

American Society of Mechanical Engineering (including Textile Section), general meeting. Hartford, Conn., June 1 to 3, 1931.

Philadelphia Textile School, Alumni Business Meeting, Philadelphia, June 4; Annual "Cruise" and Banquet, June 5, 1931.

Southern Textile Association, Annual Meeting, Isle of Palms Hotel, Isle of Palms, Charleston, S. C., June 12 to 13, 1931.

The Cotton Manufacturers Association of North Carolina, Twenty-fifth Annual Convention, Sedgefield Inn, Greensboro, N. C., June 19 to 20, 1931.

American Society for Testing Materials, Annual Meeting, Hotel Stevens, Chicago, June 22 to 26, 1931.

Chicago Yarn Men's Circle, Annual Golf Tournament, Nippersink Lodge, Genoa City, Wis., June 24 and 25, 1931.

American Association of Textile Chemists and Colorists, Annual Meeting, Boston, Mass., Dec. 4 and 5, 1931.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22, 1932.

✦ AUGUSTINE COURTAULD, son of S. A. COURTAULD, English silk manufacturer who passed the winter in the interior of Greenland as part of the work of an expedition to determine an Arctic air route between England and Canada, has been rescued by a Swedish aviator.

✦ WALTER C. TAYLOR, Charlotte, N. C., secretary of the Southern Textile Association, addressed the members of the Junior Chamber of Commerce at Charlotte, at a luncheon meeting.

✦ W. K. MAUNEY, secretary and treasurer of the Mauney Mills, Inc., King's Mountain, N. C., has been elected Mayor of Kings Mountain.

✦ JOHN E. PAIGE, former treasurer of the Central Mills Co., Southbridge, Mass., has been reelected president of the Southbridge Savings Bank.

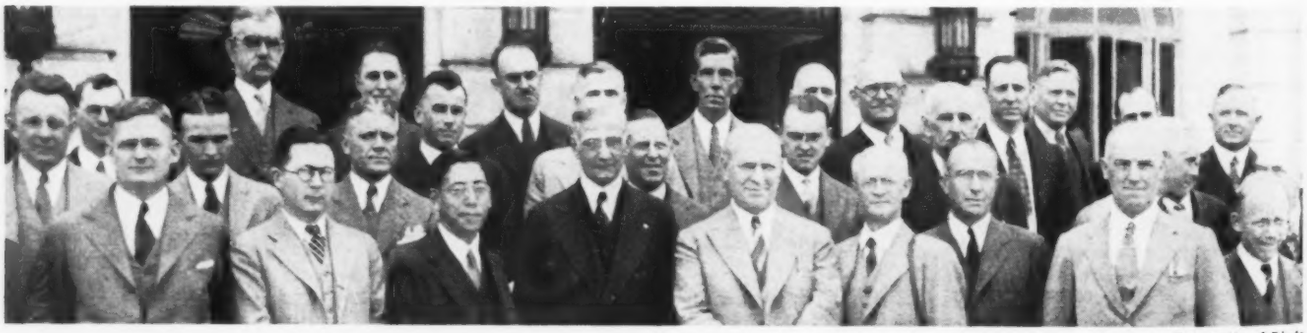
✦ ROBERT E. GRAHAM has been elected assistant treasurer of the Worcester (Mass.) Silk Mills Corp. and will make his headquarters at the company selling offices at 1400 Broadway, New York.

✦ A. R. DAVIDSON, formerly general manager of Standard Bleachery Co., Carlton Hill, N. J., has joined the selling staff of Joseph Bancroft & Sons Co., where he will specialize on fine sheer fabrics and special finishes. Mr. Davidson will be located at the company's offices, 40 Worth St.

✦ L. W. CLARK, general manager of Carolina Cotton & Woolen Mills, Spray, N. C., and MRS. CLARK, who were injured in an automobile accident about two weeks ago, near Greensboro, N. C., are understood to be improving steadily.

✦ L. A. WASSERMANN, who has been connected with the A. W. BAYLIES division of Iselin-Jefferson Co., has become associated with the Manville Jenckes Co. and will specialize in the development of rayon, rayon and cotton drapery, and bedspread fabrics in the gray for the converting trade.

✦ JOHN N. COLE, of Rockville, Conn., has been appointed superintendent of the finishing department of Wood Worsted Mill of American Woolen Co., Lawrence, Mass., to succeed JOSEPH H. WILSON, who has held that position for the last 17 years. Mr. Wilson has been with the American Woolen Co. 24 years, having started in the Wood Worsted Mill in charge of the mending department, and is now retiring at the age of 70.



International Photo

These cotton men from seven countries gathered at the Department of Agriculture to set international standard grades on cotton. The five men at center are left to right: John Mathewes, of Gastonia, N. C.; D. Kobayshi, of Japan; Secretary of Agriculture Hyde; George A. Furst, of Bremen, Germany; and H. S. Butterworth, of Manchester, England.

✦ CARL C. MATTMAN, JR., designer and consultant in the woven fabric field has joined the service department of Industrial Rayon Corp., Cleveland. Industrial's service department was organized several years ago to provide assistance for knitwear customers in working out their knitting problems. Now a similar consulting service is available to weavers using Premier rayon or Spun-Lo. Mr. Mattmann attended Philadelphia Textile School, and since graduating has been engaged in the designing, producing and marketing of woven fabrics. He has served as a works manager for two large eastern silk mills, and in a sales capacity with another silk mill. Mr. Mattmann will also assist Industrial's customers in developing new and original cloth constructions for coat linings and dress fabrics. He will have his headquarters at the main offices of the company at 9801 Walford Avenue, Cleveland.

✦ R. A. HORGAN, former industrial manager of Tubize-Chatillon Corp.'s plant at Rome, Ga., recently became connected with the Textile Development Co., Boston, Mass., and Greensboro, N. C., which specializes in the organization, operation and management of cotton mills. Mr. Horgan will have charge of the southern area for his firm.

Carl C. Mattman, Jr.

✦ JOHN S. HOYLE, for the last 19 years superintendent of the George H. Gilbert Mfg. Co., Gilbertville, Mass., has resigned his position to take effect at the end of this month.

✦ Z. Z. CALLAWAY, is now superintendent of the Dixie Mercerizing Co., Lupton City, Tenn., having returned to a position he formerly held.

✦ EDWIN FARNSWORTH, superintendent of Apponaug (R. I.) Co., has been elected one of the vice-presidents of the National Association of Textile Printing Colorists.

✦ W. P. HAMRICK, Columbia, S. C., general superintendent of the Pacific Mills in South Carolina, has been appointed by Gov. I. C. Blackwood, and confirmed by the state senate, to the position of member of the state highway commission from the fifth circuit.

✦ RICHARD HOWARTH has resigned as superintendent of Seabright Woven Felt Co., Camden, Me., after having been associated with the company for over 35 years.

✦ D. L. JONES, formerly with the Arkwright (S. C.) Mills, has become superintendent of the weaving department of Phoenix Mills, King's Mountain, N. C. L. R. MAUNEY has resigned as supervisor of the mechanical department of this company and is succeeded by W. E. OWENS.

✦ JOHN HUFFAKER has gone to New York City from Old Hickory, Tenn., where he has been transferred by the Du Pont Rayon Co.

Obituary

Hiram R. Mallinson

Hiram R. Mallinson, president of H. R. Mallinson & Co., one of the country's largest silk manufacturers, died of a heart attack Tuesday afternoon at his offices, 295 Fifth Avenue, New York. He was 59 years old, and had been under a physician's care for some time. He appeared at his offices Tuesday morning in normal health and good spirits.

Mr. Mallinson was born in Utica, N. Y., July 26, 1871, of a family in modest circumstances. After attending the public schools in Utica he worked for several years in a retail store there and in Detroit, displaying ability in salesmanship and organization while still in his teens.

He became a salesman for Pelgram & Meyer, silk manufacturers, in 1892. In 1903 he became a partner with M. C. Migel in manufacturing silk, and later took over the firm. Under Mr. Mallinson's leadership, mills were developed in Astoria, Queens; Union City, N. J.; Erie, Pa.; Trenton, N. J.; Paterson, N. J., and Allentown, Pa. In 1915, Mr. Mallinson took into partnership with him E. Irving Hanson, and in 1918 the concern was incorporated under the laws of New York, and in 1919 under the laws of Delaware.

Mr. Mallinson traveled extensively in the course of his business, and in 1924 when in Paris acquired the exclusive American rights to manufacture by power loom here copies of the hand-loom fabrics created by Rodier. This exclusive agency was maintained for several years.

Mr. Mallinson was in Egypt at the opening of Tut-ankh-Amen's tomb in 1923, and cabled his firm with the prophesy, later verified, that "a distinct epoch of Egyptian fashions" would sweep across the world of feminine style. His firm has built an enviable reputation for originality and authority in its style creations.

Mr. Mallinson was a member of the board of governors of the Silk Association of America; a member of the Manhattan Club, Empire State Club, Whist Club, Blind Brook Country Club, Columbia Yacht Club, Havana Biltmore Yacht and Country Club, Havana Yacht Club, Lotos Club, National Arts Club, New York Athletic Club and the United Hunts Club. He was a patron member of the Metropolitan Museum of Art. He is survived by his widow, a son, a daughter and a grand-daughter. Funeral was held Thursday afternoon.

William L. Black

William L. Black, last surviving charter member of the New York Cotton Exchange, died last Monday at his ranch at Fort McKavett, Texas. He was 88 years old and had sold his exchange membership in 1873. Since then he has been raising sheep.

Clarence Edwin Cleveland

Clarence Edwin Cleveland, one of the owners of the Israel Putnam Mills, Inc., Wilsonville, Conn., former treasurer of the Intervale Mills, Inc., Dudley, Mass., and for the last 45 years prominent in the textile industry in the Webster, Mass., section of New England, died suddenly at the home of his sister in Worcester, Mass., on May 8, while on a visit. He had been in failing health for several weeks. He was born in Worcester in 1869 and at the age of 18 started work in Webster as an office boy. In 1890 he became associated with the Intervale Mills. Subsequently he purchased the business and operated it until 1928, when his son, Eben S. Cleveland, president and treasurer of the mills, succeeded him. With other Webster men he then bought the Lawrence Keegan Co. property in Wilsonville, Conn., later in 1928, and organized a new corporation, the Israel Putnam Mills, Inc. He was an active member of the Manufacturers' Textile Association of Worcester County and had served on its legislative committee. He was also a member of the American Society of Mechanical Engineers, masonic fraternity and other organizations. He leaves a widow, one daughter and two sons.

Thomas B. Gannett

Thomas B. Gannett, a director of the Draper Corp., Hopedale, Mass., and in other textile concerns, and a brother-in-law of B. H. Bristow Draper, president of the Draper Corp., and Eben S. Draper, died of pneumonia at his home in Milton, Mass., on May 6. He was 56 years old and a member of the firm of Parkinson, Burr, Gannett & Co., Boston stock brokers. Mr. Gannett had recently returned from a southern trip, during which he suffered a chill, and pneumonia later developed.

William T. Westerman

William T. Westerman died May 1 in his seventy-fifth year at his home in Manayunk, Philadelphia. He was for many years an officer and manager of the Ontario Spinning Co. Mr. Westerman was a past master of Roxborough Lodge, No. 135, F. & A. M., and since his retirement from business he had been active in the Civic Federation and the Parents Public School Association. He is survived by his widow, two sons and four daughters.

James G. Gregory

James G. Gregory, aged 62 years, secretary-treasurer of Elizabeth City (N. C.) Cotton Mills, committed suicide May 8, while alone in his office at the mill. He is survived by his widow and daughter.

Franklin B. Kear

Franklin B. Kear, aged 51 years, general manager of the Watsontown (Pa.) Silk Mills, Inc., died recently at a hospital in Danville, Pa., following a brief illness.

NEWS about MILLS

Cotton

Anniston (Ala.) Mfg. Co., has purchased two Universal No. 40 winders with two high speed Saco-Lowell warpers having magazine cone creels.

Bibb Mfg. Co., Macon, Ga., recently placed an order with Carolina Specialty Co., Charlotte, N. C., for 1,060 Veeder-Root duplex pick counters for equipping new looms in its Columbus, Ga. plant.

Pepperell Mfg. Co., Lindale, Ga., recently purchased four Universal No. 40 winders to supply yarn for high speed ball warpers with magazine cone creels.

Pepperell Mfg. Co., Boston, chartered under Massachusetts laws with 1,000 shares non par value stock, New York City office 40 Worth St., filed a certificate of statement and designation to enable it to do business in New York State.

West Boylston Mfg. Co., Easthampton, Mass., will consider sale of real estate, machinery and buildings at a special meeting of stockholders to be held this month. Directors report that the business cannot be profitably operated under present conditions. The plant has been closed since April.

West End Thread Corp., Millbury, Mass., incorporated on April 10, with a capital stock of $250,000 to make cotton, linen, silk, wool and other threads, succeeding the **West End Thread Co.,** with headquarters in Boston, and plant in Millbury, has organized by the election of the following officers and directors: President, Eliot N. Jones, Boston; treasurer, James H. McGuerty, Dedham, Mass.; and Edward F. Harmon, Winchester, Mass. The officers of the old company were: President, William M. Butler, New Bedford, Mass.; treasurer, T. C. Chase, Boston, with A. S. Haywood as superintendent and buyer.

Ranlo Mfg. Co., Gastonia, N. C., is installing yarn dyeing equipment in its Modena plant and it is expected that the dyeing department will be in operation by June 1. It was also announced that the Modena plant would begin the manufacture of fine combed hosiery yarns in addition to tire fabric yarns which have comprised its total production in the past.

Morgan Cotton Mills, Inc., Laurel Hill, N. C., operators of textile mills there and at Marshville, N. C., Millen and Quitman, Ga., have leased the modern one-story mill building, 100x250 ft., which is being erected by McNair Investment Co., Laurinburg, N. C., and which will be completed in approximately 90 days. The new mill will manufacture twines, laundry bags, spun and woven specialties. L. D. Tucker, of Laurinburg, building contractor, is handling construction work on the project.

National Weaving Co., Lowell, N. C., is installing complete water purification plant, taking its supply from the South Fork River. The purified water will be used for domestic and mill use. Hungerford & Terry, Inc., Clayton, N. J., are engineers.

American Yarn & Processing Co., Mount Holly, N. C., is planning the early installation of pumping machinery, filtration equipment and accessories, to replace the units recently damaged by fire.

Pilot Cotton Mills, Raleigh, N. C., closed for some time, are now in the process of re-opening under new management. Officers state that they have received sufficient orders for three months steady run.

San Marcos (Tex.) Cotton Mills building, erected several years ago, but in which machinery was never installed, may be used for a woolen mill, if negotiations now being considered by the local chamber of commerce are consummated. Definite action is expected in a few weeks.

**Indicates previous mention of project.*

Wool

Central Worsted Mills, Inc., Central Village, Conn., have been organized with a capital of $50,000, to take over and operate the local mill of the **Central Worsted Co.,** recently acquired by E. C. Mowry, Providence, R. I., and who will head new organization. Other incorporators include E. L. Darbie, Danielson, Conn., and F. M. Blake, Brooklyn, N. Y.

American Woolen Co., Boston, Mass., has filed notice of organization as a Massachusetts corporation, to operate in New York with a capital of $60,000,000.

U. S. Bunting Co., Lowell, Mass., has foundations in for a manufacturing unit on Crosby St. The building will be of brick construction, one-story, 85x160 ft. W. B. French, superintendent in charge of construction, is awarding the separate contracts.

Southwell Wool Combing Co., North Chelmsford, Mass., is operating with day and night forces with the result that the plant is operating 23 hours every work day.

Thorndike Co., West Warren, Mass., which has supplied the village with water for both domestic use and fire protection, is planning to sell the facilities for the domestic supply to a proposed West Warren Water District at a cost not exceeding $50,000. Legislative permission is necessary before the deal can go through. W. J. Littlefield, treasurer of the company and others urged favorable action at a hearing in Boston on May 5.

Mohawk Carpet Mills, Inc., Amsterdam, N. Y., plan installation of a conveyor in shipping goods from the newly constructed axminster plant to their freight loading platform on the New York Central line.

H. C. Ball & Co., Manayunk, Pa., will hold auction sale of machinery and equipment on May 20 at 10 a.m., on the premises at Main below Dawson St. Samuel T. Freeman & Co. are auctioneers. Sale includes cards, combs, roving, spinning and twisting frames, spoolers, reels, etc.

Centredale Worsted Mills' (Allendale, R. I.) plant was destroyed by fire on May 7, causing damage estimated at $20,000 to wool and shoddy. The loss was covered by insurance.

Stillwater Worsted Mills, Harrisville, R. I., have awarded general contract to O. D. Purington & Co., 49 Westminster St., Providence, R. I., for a three-story brick and steel addition, 50x60 ft., to be equipped as a dyehouse. Lockwood, Greene Engineers, Inc., 24 Federal St., Boston, Mass., are architects and engineers.

Branch River Wool Combing Co., Inc., North Smithfield, R. I., through Lockwood Greene Engineers, Inc., 24 Federal St., Boston, Mass., is taking bids until May 14 for an extension at its plant.

Knit

Perfection Knitting Mills, Los Angeles, Calif., have filed notice of organization to take over and operate local company of same name, with mill at 1313 South Fedora St. The company is headed by Edwin E. Grewe and Hanna C. Mildner.

Lowell (Mass.) Mills Co., sport hosiery manufacturer, will move into its new plant, formerly Shaw Stocking Co. group, about June 1, according to President Norman B. Reed. The company, which operates 125 knitting machines, has been located for the last three years in the plant of the Lawrence Mfg. Co.

Corinth (Miss.) Hosiery Mill, Inc., has completed the construction of its new mill unit on which work has been in progress for a number of months past, and will place the plant in service at an early date. The mill is said to represent an investment of about $1,000,000, with machinery.

Woodlawn Knitting Mill, Inc., Buffalo, N. Y., recently organized to take over the local plant and business of the **Mitchell Knitting Mills,** Woodlawn Ave., will operate with a capital of 200 shares of stock, no par value.

Hoover Hosiery Co., Concord, N. C., manufacturer of fine-gauge, full-fashioned hosiery, is progressing with the erection of its new two-story building 56x180 ft., which is expected to be completed by Sept. 1. As stated by A. R. Hoover, secretary and treasurer, the building and machinery will represent an expenditure of $200,000. About 125 more employees will be given work when the department is put into operation.

Berkshire Knitting Mills, Reading, Pa., have increased their working hours and put a night force on duty. The plant is making large quantities of silk net hosiery for women.

Abercrombie Knitting Mills, Ltd., 317 Adelaide St. W., Toronto (Ont., Can.), which have been reorganized are now making plans for extensive expansion whereby the production will be doubled.

Silk

Willimantic (Conn.) Silk, Inc., is installing machinery in the new throwing mill on Bridge St. recently completed.

Tirrell Bros. Silk Corp., Milford, N. J., resumed operations at its mill on May 6, following a short shutdown for the installation of new automatic shuttle stops for loom service. The plant will continue on a full production schedule with regular working quota.

Golkem Silk Co., Inc., Paterson, N. J., recently organized with a capital of $125,000, to operate a local broad silk mill, will be represented by Abraham Waks, 136 Washington St., Paterson, an attorney. The company is headed by Peter Kempner and Isidore Gold, both of Paterson.

Van Raalte Co., Saratoga Springs, N. Y., has been granted tax exemption on its local branch for five years on condition that it operates continuously.

**Indicates previous mention of project.*

The company has installed 70 power sewing machines and plans to reopen next week.

Fellows-Huber Co., East Stroudsburg, Pa., dress silks, has resumed operations. The mills are expected to be run at capacity soon.

***L'Heureux Silk Mill,** Philadelphia, Pa., formerly **Alfred L'Heureux, Jr. Silk Works,** of Williamstown, N. J., has most of the plant in production in more spacious quarters at Amber & Hagert Sts. The company manufactures, among other products, jersey cloth, of both silk and rayon, and glove silk for the underwear trade.

General Fabrics Corp. of R. I., Central Falls (R. I.) silk manufacturing plant, closed down May 7, to forestall labor trouble. The plant employs between 700 and 800 workers and has been running three shifts. It is still closed.

Narrow Fabric Weaving & Dyeing, Ltd., Galt (Ont., Can.) has awarded contract for the erection of addition to its textile mill to G. H. Thomas & Son, local contractors.

Rayon

Acme Rayon Corp., Cleveland, Ohio, is not yet ready to resume operations, as announced by C. P. Green, treasurer and general manager. He stated that the extensive alterations and improvements in the plant should be completed by the middle of the month when operation are expected to be renewed. As noted, the plant was shut down early in the year.

Skenandoa Rayon Corp., Utica, N. Y., is now operating on full-time day schedules with an enlarged force.

Finishing

Arnold Print Works, North Adams, Mass., are running on a capacity schedule, with full working force, and expect to hold to this basis for an indefinite period.

Miscellaneous

Connecticut Asbestos Corp., New Haven, Conn., recently organized with a capital of $25,000, to operate a local plant, will be headed by W. H. Juliff, Hartford, Conn., who will be president of the company. H. A. Ackerman, Longmeadow, Mass., is secretary and treasurer.

R. & G. Embroidery Works, West New York, N. J., recently organized with a capital of $50,000 to operate a local machine embroidery plant, will be represented by Philip Sherman, 677 Bline Ave., West New York, an attorney. Abraham Raven, West New York, is one of the principal incorporators.

TEXTILE WORLD Cotton and Wool Index Numbers

COTTON INDEX NUMBERS

Date	Cotton	Yarns	Gray Goods	Colored Goods	Aver. for Cloths	Group Average
July 31, 1914	100	100	100	100	100	100
1925						
January....	192	197	195	173	184	187
April.....	196	194	193	180	187	188
July.....	197	183	185	176	181	182
October....	174	189	193	178	186	186
1926						
January....	167	175	177	162	170	171
April.....	153	163	161	155	158	159
July.....	149	149	151	141	146	147
October....	106	141	147	144	146	143
1927						
January....	107	134	140	140	140	138
April.....	118	136	143	142	143	140
July.....	143	149	156	145	151	150
October....	168	176	184	169	176	176
1928						
January....	151	163	166	166	166	165
April.....	164	160	160	165	162½	162
July.....	174	167	165	168	166½	167
October....	157	161	162	164	163	162
1929						
January....	162	166	158	169	163½	164
April.....	163½	164	157	173	165	165
July.....	149	160	149	166	158	158
October....	147	160½	155	161	158	158
1930						
January....	138	149	141	157	149	149
April.....	131	139	129	156	143	142
July.....	105	120	119	142	130	128
October....	85	110	115	125	120	117
1931						
January....	82	102	107	124	115	112
February...	88	104	106	124	115	112
March.....	87	102	109	125	117	113
April.....	82	100	106	125	116	111

THE April indexes for cotton, yarn, and gray goods in the cotton group, and worsted yarns and cloths in the wool group, all showed declines from the previous month. Raw wool and tops were unchanged.

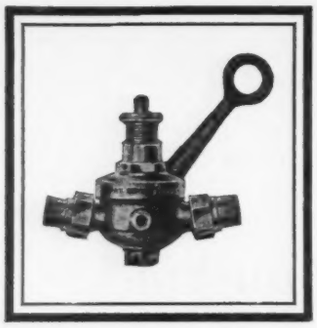
The raw cotton monthly average fell to 82, and in the fourth week touched 80, at which point it was again at its record low for these indexes. Yarn is off two points, and at 100 is at the lowest point since 1914 when these indexes were started. Gray goods failed to maintain their good showing in March, and the index for this group is off 3 points to its February level of 106. Colored goods were firm and unchanged.

The raw wool and top indexes were firm throughout the month, although in the fourth week, the latter index touched 111, or 1 point below the monthly average. The weakness in worsted yarns apparent in the first quarter of the year continued through April, this index moving off 5 points to 134. The cloth index declined one point from the March average to 191.

Inquiries regarding interpretation and use of TEXTILE WORLD index numbers may be addressed to the Statistical Dept., 1427 Statler Bldg., Boston, Mass.

WOOL INDEX NUMBERS

Date	Wool	Tops	Yarns	Cloth	Group Aver.
July 31, 1914	100	100	100	100	100
1925					
January.....	215	213	211	229	221
April.....	219	234	230	241	235
July.....	216	217	216	239	227
October.....	216	212	212	227	220
1926					
January.....	215	213	211	229	221
April.....	181	193	198	224	208
July.....	173	184	189	215	199
October.....	178	186	193	209	198
1927					
January.....	178	187	190	209	198
April.....	177	182	184	211	196
July.....	180	183	183	211	196
October.....	185	185	189	211	199
1928					
January.....	194	193	186	212	201
April.....	199	206	198	215	208
July.....	204	206	203	214	209
October.....	197	197	203	212	206
1929					
January.....	199	198	201	211½	206
April.....	187	189	198	211	202
July.....	169	170	188	211	194
October.....	164½	169	188	211	194
1930					
January.....	148	161	177	211	188
April.....	127	139	164	202	175
July.....	125	135	158	200	171
October.....	124	135	154	200	170
1931					
January.....	112	127	148	197	165
February.....	106	122	143	197	162
March.....	101	112	139	192	157
April.....	101	112	134	191	156



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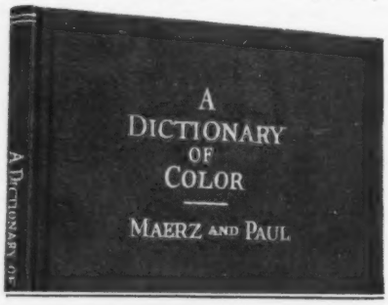

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